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RICHARD DRUMMOND MAXWELL.

The Journal of Obstetrics and Gynæcology of the British Empire

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Obituary.

Richard Drummond Maxwell.

RICHARD DRUMMOND MAXWELL was born in Edinburgh on March 16th, 1873. He was very proud of his Scotch descent, had many friends in Edinburgh, and was never happier than when he could take a short holiday in the North. He was educated at the City of London School. After leaving school he attended classes at University College.

He came to the London Hospital as a student in 1892, and qualified M.B. (Lond.), M.R.C.S., L.R.C.P. in 1897. After holding the appointments of House Physician, House Surgeon and Receiving Officer he served as a civil surgeon in South Africa. At the end of the war he became Resident Medical Officer at Queen Charlotte's Hospital in 1903. From this time onwards he devoted himself to obstetrics and gynæcology with energy and enthusiasm. Those who knew him recognized the fact that he had developed a great deal since his student days. In 1904 he took the M.D. (Lond.) in Obstetrics and Gynæcology. Soon after this he passed the Primary Fellowship examination, and in 1907 became F.R.C.S. For some years before this he attended most regularly all the gynæcological operations at the London Hospital, and soon made himself a sort of unofficial Registrar, and a very useful one, although there was no prospect of there being a vacancy on the Staff. He made himself so useful and worked with such energy that he was appointed Obstetric Registrar and Tutor in 1907. From that time until his death Maxwell worked with me almost continuously and always harmoniously. In 1908 he was appointed to the Staff of the Samaritan Hospital, in 1909 to the Staff of Queen Charlotte's Hospital, and in 1912, on the retirement of Dr. Lewers, he was appointed Assistant Obstetric Physician to the London Hospital. The late Dr. G. E. Herman formed a very high opinion of Maxwell at this time, when they brought out a new edition of Herman's "Diseases of Women" together. Maxwell was a loyal, cheery and unselfish colleague. During my illness

last year he had charge of all the gynæcological and obstetrical beds at the London Hospital for nine months with only occasional help when one of the assistant surgeons performed some of the emergency operations. He took on this extra work cheerfully and unselfishly, although he longed to go out to the War. I wrote to him several times asking him whether it would not be better to make some temporary arrangement by which he could be relieved of some of the work and responsibility, but he always answered cheerfully, ' Don't worry about the Hospital . . . I can carry on." How well he " carried on " is shown by the Hospital records, by a paper which he published in *The Practitioner* in February, 1916, by a paper which is in the press, to appear in the *Clinical Journal* and by a more ambitious paper, unfinished, which he was writing with Dr. A. B. Lindsay. I hope that it may be possible to publish this last paper. Beyond several short communications Maxwell had not written much, but was beginning to write and to write well. He was much impressed by the obstetric tragedies which every obstetrician knows—cases in which skilled help is not sought until brute force has done its worst—and would have been a keen advocate of State provision of labour-wards for all poor women. He wrote : " The ideal one would like to attain to (and it is not beyond reach) is the extension of the infirmary service to include much more of this class of midwifery in its province than is at present possible. Every case in this class of life would be delivered in the local district lying-in ward, and, if normal, sent back, by ambulance, to her home in twenty-four hours' time, subsequent attention and visits being carried out by a nursing staff under the supervision of an obstetrical officer of experience." He was an able and popular teacher of students and nurses, knew well the value of a good story or a quaint allusion in driving his point home, and took pains to train himself as a teacher. He was a skilful and successful operator.

Maxwell was an excellent companion. Being catholic in his interests, he talked well on many subjects, always in an interesting manner in a style of his own, often with a cynicism which did not go very deep, and with much wit and humour. He was unusually well versed in the Old Testament, from which he got some of his most apt quotations. For the last year he was in command of the London Hospital section of the London University Officers' Training Corps. He spent a fortnight in camp last July, and enjoyed every minute of it. As a student he was a sprinter and Rugby football player. With the family his holidays were nearly always spent in Scotland, either in Skye, where he walked and fished to his heart's content, or in Dumfriesshire whence his family originally came. The district round Sanquhar and Wanlockhead he knew by heart, visiting the graves of his ancestors, tramping

for days over the moors and hills or else fishing in the Nith and Crawick. He always said that a week in Dumfriesshire did him more good through the tonic of the moorland air than a month elsewhere. When he settled in town he rode a little and played golf for a short time, but until last year had rather neglected taking exercise. Last year he played lawn tennis, and told me that he had derived great benefit from it when he was working at his hardest. During the last few months he had taken up physical culture, bedroom exercises, etc., and used to swim twelve lengths of the bath at the Royal Automobile Club every evening and sprint afterwards. He told me, a few weeks before his death, that he considered that health was the most important asset a man could have, and that his own sense of physical fitness had improved greatly as the result of physical culture. Three and a half years ago he suffered from a duodenal ulcer which was cured by gastro-jejunostomy and removal of the appendix. An unsuspected band, however, formed between the region of the appendix and some point in the pelvis, and this caused his death. The end came with a shocking suddenness. He did not feel well on Friday, March 3rd, but on the next day wrote to the Hospital that he would operate as usual on the following Monday. On the morning of Sunday, March 5th, an operation was performed on account of intestinal obstruction, and he died twenty-four hours later.

The premature end to a life full of promise and of usefulness to patients and students and to his profession came as a great blow to an unusually large circle of professional friends, and Maxwell's loss will be long and deeply felt by them and at the London and Queen Charlotte's Hospitals. He was one of the original and most energetic and enthusiastic members of the Gynæcological Visiting Society, the members of which deeply deplore his loss.

HENRY RUSSELL ANDREWS.

A Chronology of the Founders of the Forceps (1569—1799).

By Alban Doran, F.R.C.S.,

Consulting Surgeon to the Samaritan Free Hospital.

The following chronological epitome of the obstetricians who introduced and established the obstetric forceps is compiled from the works of Mulder, Smellie, Aveling and others, books not accessible to every medical reader and never, as I can testify, to be found together in the same library in London, Edinburgh or Dublin. It will aid the obstetrician and literary doctor in gaining a fair notion of the dates which throw light on the gradual evolution of the forceps. When the earlier writings, noted throughout this epitome, are consulted, the reader will be able to discover with little difficulty the development of other instruments such as the vectis, the perforator and the cephalotribe. Lost history, of course, cannot be rewritten, and therefore the precise relation of Smellie to the adoption and modification of the forceps is not likely to be thoroughly cleared up, unless some reliable but hitherto undiscovered documents can be found and published. We must all be deeply grateful to Dr. Alfred McClintock who did such excellent work in that direction in his New Sydenham Society's edition of Smellie's "Treatise." For my own part, however, I have availed myself of the second edition published in 1779, and always consulted the original writers in making references, whenever possible.

I have appended the genealogy of two illustrious obstetric families, the Chamberlens and Baudelocques. Though much has been written concerning the former, there is great confusion about their relationship, due to more than one bearing the same Christian name, whilst there is considerable misapprehension in respect to the Baudelocques, many of us being under the impression that there was but one, or at least one father and one son, of that name associated with obstetrics, whilst the initial Christian names have been sometimes misprinted in British and German works. Aveling's "The Chamberlens and the Midwifery Forceps" has been my standard work of reference for the "Asclepiad family," while for the genealogy of the Baudelocques I am indebted to Professor Paul Bar.

1569. William Chamberlen leaves France and lands at Southampton, attending at the Church of St. Julian, according to the custom of Huguenot refugees, on landing. "Chambrelein Villame, reçu à la Cène, 3 Juillet 1569." His wife and his three

children, Peter (the elder), Simon, and Jane came with him, and a son "Jacques fils de Villame Chambrelein et de Genevieve Vingnon sa fâme" baptized July 26th.

1572. Birth of Peter the younger, son of William. Peter, the elder brother, was old enough to attest to the birth and baptism of his brother (Aveling, *l. cit.*, p. 15). 1588. Peter the elder still in Southampton. 1596. In a legal document his residence is given as London and "the late William Chamberlaine" is referred to. The actual date of William's death is not recorded, nor is it known in what year Peter the elder joined the Barber Surgeons (see 1598).

1596. Peter the younger admitted in this year, or shortly after, to the Company of Barber Surgeons. The deposition of his birth in England in 1572 was again officially recorded before the Vicar-General of the Bishop of London, to satisfy the Barbers' Company that he was not born abroad (Aveling, *l. cit.*, p. 17).

1598. Peter the elder's name appears in the "Annals of the Barber Surgeons' Company." He must have received the hood before 1598, when he was cited before the Court for "arrerages of his debts for his admission." During the succeeding years he more than once paid fines for absence from lectures, being in good practice.

1600. Peter Chamberlen the younger was licensed to practise midwifery by the authority of the Bishop of London in this or in the preceding or succeeding year (Aveling, *l. cit.*, pp. 18, 19).

1601. Birth of Dr. Peter Chamberlen, son of Peter the younger.

1602. The "Annals of the Barber Surgeons" report "August 3. This daye Peter Chamberlen (*sic*) the younger fyned for his absence from lectures and upon his humble suit he was admitted to hang out his bassins for Barbour in Blackfryars." Already in 1600 he had been accused by the College of Physicians of having treated Morbus Gallicus by means of purging and drying diet. He was repeatedly in trouble, both with the College and with the Barber Surgeons, for professional irregularities (Aveling, *l. cit.*, pp. 17–24).

1609. "Petrus Chamberlaine Senior habitans in Marke Lane," cited before the President and Censors of the College of Physicians for practising physic instead of confining himself to surgery (*Ib.*, p. 6).

1612. After repeatedly transgressing in the manner as in 1609, Peter the elder was imprisoned in Newgate. He was set free after great resistance from the College. The Archbishop of Canterbury, at the mandate of the Queen, Anne of Denmark, prevailed with the President of the College and Peter was released. In his will, Peter the elder refers to "my diamond ringe which I had of Queen Anne." In 1614 he is entered as "Peter Chamberlen (*sic*) surgeon to the Queen £40," in a register of fees payable out of James the First's exchequer. In 1627 he was awarded £600 for undertaking

the duties of Duncan Primrose, Sergeant Surgeon to Charles I, during his absence (*Ib.*, pp. 6 to 9).

1616. The College of Physicians deliberate about letters patent for the incorporation of midwives, the midwives' petition being considered. "To Peter Chamberlen the younger, who was impudently advocating the cause of these women, the question was put, whether, if a difficulty in a case of labour were propounded to any member of the College he would not answer and judge more correctly than any obstetric surgeon whatever, in spite of his boast that he and his brother, and none others, excelled in these subjects" (*Ib.*, p. 29). The College did not "think yt neither necessary nor convenient that they (the midwives) should be made a corporation to govern within themselves a thinge not exampled in any commonwealth" (*Ib.*, pp. 23, 24, see 1634).

1619. Dr. Peter Chamberlen graduated as Doctor of Medicine at Padua, when only eighteen years of age.

1620. Dr. Peter Chamberlain was incorporated on the Padua degree at Oxford.

1620. Last entry of the name of Peter the younger in the Annals of the College of Physicians. After Drs. Argent, Clement and Golston had charged him with adding the pulp of colocynth to a clyster which they had prescribed for a male patient, they accused him of other instances of evil practice in the cases of puerperal women to the number of three, four, or five (*Ib.*, p. 25).

1621. Dr. Peter Chamberlen was incorporated on the Padua degree at Cambridge. Examined by the Censors of the College of Physicians and "recommended to wait and try again with good expectation of success the next time."

1626. Dr. Peter Chamberlen examined once more, at the College of Physicians, approved, elected and sworn.

Death of Peter Chamberlen the younger at Downe, Kent.

1628. Dr. Peter Chamberlen admitted Fellow of the College of Physicians April 7, after being admonished to "no longer follow the frivolous fashion of the youth at Court" (*Ib.*, p. 32).

1628. Peter Chamberlen the elder appears as a court obstetrician. "The Queen (Henrietta Maria) mis-carried of her first child. She had neither mid-wife nor physician about her, only the poor town mid-wife of Greenwich was sent for who swooned with fear as soon as she was brought into the Queen's chamber so as she was forced presently to be carried out; and *Chamberlayne* (*sic*) *the surgeon was he alone that did the part of a midwife.* This took place in 1628." "Court and Times of Charles I," quoted by Aveling, *Op. cit.*, p. 9. (See 1663 and 1682.)

1630 (or a year or two earlier or later). Birth of Dr. Hugh Chamberlain the elder, son of Dr. Peter. No proof that he ever took a degree.

1631. "Peter Chambrelan thelder of London Chirurgion" died, probably at Downe in Kent (Aveling, *l. cit.*, pp. 9 to 14). Probably the inventor of the "saving" midwifery forceps. (See *Ib.*, p. 226.)

1634. Negotiations with the College of Physicians for the establishment of a Corporation of Midwives with Dr. Peter Chamberlen as Governor. The scheme was disapproved of by the College and by the Archbishop of Canterbury (Laud) and the Bishop of London (Juxon) (reported in full, Aveling, *loc. cit.*, p. 34 *et seq*).

It was objected that Dr. Chamberlane (*sic*) practised midwifery "as a Physitian" and should have nothing to do with midwives than "other of the Physitians of the College have whose advice they crave when occasion requyres it and whose Judgem^{ts} no doubt are as good as his in any accidents that may befall or concerne women wth childe vnles itt be in the very act of deliv'ie of vnnaturall and dangerous births to effect w^{ch} there is necessitye of using of instrum^{ts} of iron, being indeed more pperly the work of a Surgeon then a Physition; so with manuall practize the said Dr. hath applied himself more than others by reason few or none can brook the practise thereof."[1]

This document proves that as early as in 1634 the profession was well aware that the Chamberlens used special "instruments of iron," so that they must already have been in use for many years.

1635. Birth of Paul, son of Dr. Peter Chamberlen. He practised midwifery but became an avowed charlatan.

Dr. Peter Chamberlen visited the "Low-Countreys." Reported in the books of the College of Physicians as an absentee. Several charges of professional irregularities are recorded during this period of his life. Thus in 1634 and 1638 there were complaints that he kept a French apothecary in his house.

1642. Sir John Hinton, once associated with Dr. Peter Chamberlen, attended Queen Henrietta Maria at Exeter when she gave birth to the Princess Henrietta, afterwards Duchess of Orleans.

1647. In "The Ladies' Parliament" by Henry Nevill, 1647, is to be found the following order of the House: "That Dr. Hinton and Dr. [Peter] Chamberlen be likewise assistants that with greater secrecy and ease their Ladyships may be help and with their most troublesome and pressing affairs" (Aveling, *ib.*, p. 32).

1. In a communication on "The Curves of the Midwifery Forceps," *Trans. Obstet. Soc., Lond.*, Vol. XX (1878), p. 132, Aveling quotes a later reference, "*circa* 1640," about Dr. Peter and his *iron instruments*. But Aveling's standard work was published four years later, and the above quotation proves that the "instruments" were well known in 1634, when the "Bishopp" gave audience to the petitioners on September 4th.

Publication of "A Voice in Rhama," Dr. Peter Chamberlen's reply to the accusations of the physicians and midwives who had condemned his project for the incorporation of midwives. He speaks of the "common knowledge" of "Asclepiad families" and defends the principle of keeping secret new remedies and operations introduced by such families.

Fined by the College "concerning the making of his feast," that is, for not giving the customary dinner to newly admitted Fellows (*Ib.*, p. 60).

1649. Dr. Peter Chamberlen's bath and bath stove scheme, approved by the House of Lords, strongly opposed by the College. He ceased to attend its meetings, and on November 23rd was dismissed from the Fellowship (*Ib.*, p. 77).

1650. Palfyn born at Ypres. Publication of "An Answer to Dr. Peter Chamberlaine's (*sic*) Scandalous and False Papers" by Philolethes. A scurrilous but amusing biography and criticism of Chamberlen (*Ib.*, p. 33).

[During the Commonwealth Dr. Peter Chamberlen entered into numerous religious disputations.]

1660. Dr. Peter Chamberlen appointed Physician in Ordinary to Charles II. (appointment confirmed 1672.) He behaved very strangely during the rest of his life.

1663. December 19th "Le Sieur Boucher" attends Mademoiselle de la Vallière in her first confinement. [Julien Clément, the first recognized accoucheur to a court, was only 14 years old at that date. The Princesse de Conti, the eldest of the La Vallière's children who survived, was born in 1666. See Cabanès, "Le Carnet Secret de l'Histoire," 2me Serie, p. 39 *et seq.*]

1664. Birth of Dr. Hugh Chamberlain, Junior.

1668. According to R. W. Johnson (see 1769), Drinkwater of Brentford already began to use in this year a forceps which came into Johnson's possession.

1670. Julien Clément (see 1663), afterwards Court Accoucheur, attended Mme. de Montespan at the birth of the Duc de Maine, on March 31.

Hugh Chamberlen, senior (who had taken an active part in the plague year 1665) visits Paris, and fails to deliver Mauriceau's patient, a rachitic dwarf, aged 38, who dies "après les extrêmes violences qu'il lui avoit faites." ("Observations sur la Grossesse et l'Accouchement," Case xxvi, published in full, in the original French, by Aveling, *loc. cit.*, pp. 128 to 132.)

1672. Hugh Chamberlen's translation of Mauriceau's work on Midwifery published.

1673. Hugh Chamberlen appointed Doctor in Ordinary to Charles II. *vice* Sir John Hinton, deceased.

1681. Hugh Chamberlen, Senior, elected (as "Dr. Hugh

Chamberlain") a Fellow of the Royal Society, and registered "Chamberlane" when admitted (Aveling, *loc. cit.*, 130, footnote).

1682. Clément's first case as Court Accoucheur (birth of the Duc de Bourgogne, eldest child of the Dauphin and the Dauphine Marie Anne de Bavière). See 1628.

1683. Death of Dr. Peter Chamberlen at Woodham Mortimer Hall, Essex. The forceps, etc., were discovered there in 1818, and are now in the library of the Royal Society of Medicine.

1684. Hugh Chamberlen, Junior, settled at Leyden.

1685. Hugh Chamberlen, Senior, publishes, avowedly for the use of a son whom he had sent to the East Indies, his "Manuale Medicum or a small treatise of the Art of Physick in general and of Vomits and the Jesuit Powder in particular, by Hugh Chamberlain (*sic*), Physitian in Ordinary to His late Majesty and Fellow of the Royal Society, London." His advocacy of vomiting offended the College of Physicians (Aveling, *loc. cit.*, pp. 138, 139).

1688. Hugh Chamberlen, Senior, prosecuted by the Censors for malpraxis. He had administered to a Mrs. Willmer, six months pregnant and suffering from pleurisy (?), four vomits, four purges and three bleedings (to 8 oz. each time) within nine days, then he salivated her freely and she miscarried and died.

1688, June 10. Birth of James, the "Old Pretender" or Chevalier de St. Georges. Dr. Hugh Chamberlen, Senior, was sent for "and found a child newly born loose and undrest, in Lady Powis her lap, and as I was informed, brought forth an hour before I came." Letter "to the Princess Sophia" about the warming pan legend. See Aveling, *loc. cit.*, p. 149.

1689. Hugh Chamberlen, Junior, created M.D. Cantab (Comitiis Regiis).

1690. Dr. Hugh Chamberlen, Senior, publishes a "Proposal to make England Rich and Happy" by a Land Bank. For ten years he agitated and a great number of pamphlets written by himself and his supporters and opponents were published during that space of time (see Aveling, *loc. cit.*, p. 154, *et seq*, and Macaulay's "History of England," vol. iv).

1692, April 17. "Dr. Chamberlain (*sic*) had the honour to lay the Princesse (Anne of Denmark, afterwards Queen Anne) of a Son who immediately dyed. He had a hundred guineas for his pains." Letter quoted by Aveling, *loc. cit.*, p. 151. The doctor was Hugh Chamberlen, Senior.

Birth of Mary Louisa when her mother, Queen Mary of Modena, was in exile at St. Germains. James II. had sent for Dr. Hugh Chamberlen, Senior, but a pass was refused to him.

1693. Dr. Hugh Chamberlen, Junior, examined and admitted "Candidate" (equivalent to M.R.C.P.) at the College of Physicians. In the same year he brought about the prosecution of Cort,

a surgeon who had prescribed "internall medicins" for one of Chamberlen's patients (*loc. cit.*, p. 188).

1694. Dr. Hugh Chamberlen, Junior, admitted a Fellow of the College of Physicians. He was chosen Censor in 1707, 1719 and 1721.

1694. Hugh Chamberlen, Senior, publishes "A few Queries relating to the Practice of Physick," including a repetition of his arguments in favour of vomits and a proposal for "a new Establishment of Physick," which, among other things, was to "reform the practice of Midwifery" (*loc. cit.*, p. 152). The scheme fell to the ground.

1699. "Tuesday, 21 Mar. Dr. Chamberlain (*sic*), the man-midwife, and manager and sole contriver of the Land-bank, is retired to Holland, on suspition of debt": a scurrilous "Hue and Cry after a Man-Midwife, Who has lately delivered the Land Bank of their Money" appeared shortly afterwards. "From that time all trace of Hugh Chamberlen, Senior, in this country is lost" (Aveling, *loc. cit.*, p. 171).

1700. John Chamberlen's will proved on January 6th, but the actual date of his birth and death is lost. He was a son of Dr. Peter and, like his brothers Hugh, Senior, and Paul, he practised midwifery and possessed the family secret.

1702. Hugh Chamberlen, Senior, wrote (in Holland or possibly in Scotland) a pamphlet advocating the Union with Scotland. He practised afterwards in Amsterdam, and sold the family secret of the forceps to Roonhuysen.

1706. Paul Chamberlen (so spelt in his signature) writes a letter to Sir Hans Sloan about a midwife (*loc. cit.*, p. 183).

1710. Swift, in his journal to Stella, letter viii, Nov. 5, refers to "Dr. Chamberlain." Burton ("Dr. Slop") born at Colchester.

1717. Death of Paul Chamberlen. (Aveling, *loc. cit.*, p. 183. At least it is known that his will was proved on December 19th. It was dated by P. Chamberlen, May 24, 1713.)

1718. Hypothetical date of birth of "Tristram Shandy" (Bk. III, Chap. 3). Burton, or "Dr. Slop," was only a year old at this date.

1720. Palfyn exhibits his *mains de fer* before the French Académie Royale des Sciences. Smellie in practice in Lanark. Dr. Hugh Chamberlen, the elder, mentioned as living, in a legal document. He was apparently in Holland. The date of his death has been lost.

1721. Tobias Smollett born. De la Motte in his "Traité complet des Accouchements" denounces secrecy about obstetrical instruments, specially mentioning a "certain surgeon from Ghent who had exhibited his forceps at Paris,"—meaning Palfyn.

1723. The Faculty of Paris declare its approbation of Palfyn's forceps.

1724. Heister of Helmstadt first figured Palfyn's forceps from a sample lent to him by a friend (Mulder, "Historia Forcipum," p. 16). The passage is somewhat obscure:—"Verum enim vero Cl. Laurentius Heister, in Academia, quæ Helmstadii est, olim Professor, qui primus, quantum novi, Cochlearia Palfyni depingenda curavit ab ipsa specimina (*sic*), quæ amicus quidam cum Illo communicaverat, diversam a Levreti, Windiique descriptionibus delineationem dedit, sed hanc verum ipsius Palfyni Instrumentum referre propter allatas rationes credere vix licet."[1] (Mulder, "Historia Forcipum," 1796, p. 16.)

"For indeed truly Cl. Laurence Heister (late Professor in the University which is at Helmstadt, who first, as far as I know, had 'Palfyn's Forceps' drawn from the very specimen which a certain friend had shown him) gave a drawing different from the descriptions of Levret and de Wind; but one can hardly believe that this (drawing) refers (to) Palfyn's instruments for reasons given."

1726. Date of first case (No. xiv) where Giffard distinctly states that he made use of his forceps (see 1734).

Sir Richard Manningham (see "Tristram Shandy," Bk. I, Chap. xviii, "As the famous Dr. Manningham was not to be had") exposes Mary Tofts the rabbit-breeder in "An exact Diary of what was observed during a close attendance upon Mary Tofts, the pretended Rabbit Breeder of Godalming from Nov. 28 to Dec. 7 together with her confession of the Fraud."

1728. Death of Hugh Chamberlen, junior. "Deaths—Monday night last died Dr. Chamberlain, a famous Physician and Man-Midwife of the gout in his stomach." London Journal, June 22.

"The eminent physician and Man midwife, Dr. Hugh Chamberlen, who died on Monday night was grandson of the famous Dr. Peter Chamberlen who with his father and uncles were physicians to King James I, King Charles I, King Charles II, King James II and King William, to their respective Queens and to Queen Anne. He was the last of that Ancient Family who

1. According to more than one classical authority, Mulder's Latin was very faulty and unintelligible. Dr. David Davis speaks of his "barbarous" Latin in reference to Mulder's notes on Rawlin's forceps ((see 1793) ("On the Craniotomy Forceps of Dr. Davis in Reply to Mr. Rawlins of Oxford," *Lond. Med. Repository*, Vol. VIII, 1820, p. 381). I am indebted to Sir Francis Champneys for perusing some of Mulder's text and for the translation of the above passage. Mulder's "Epicrisis Forcipum," a summary of the instruments which he describes, with comparisons between them, and his own opinion about them, should be studied before the reader in turn judges Mulder. It forms the concluding part of the "Historia Forcipum."

practised the Art of Midwifery in the Kingdom except Dr. Walker[1] in Great Suffolk Street who is a Grandson to the fore-mentioned Dr. Peter Chamberlen." ("Country Journal and the Craftsman," June 22, 1728; quoted by Aveling, *loc. cit.*, p. 193.)

Death of Drinkwater of Brentford (see 1668).

1730. Death of Palfyn. Paulus de Wind studied at Leyden.

1733. Address on prenatal baptism by syringe presented by a surgeon to the Sorbonne, "Tristram Shandy," Bk. I, Chap. xx, and taken from a report by Deventer.

Butter exhibits a sample (see 1734) of Dusée's forceps at Edinburgh: report is preserved in "Medical Essays and Observations: Revised and published by a Society in Edinburgh," vol. iii, p. 322 (2nd edition, published 1737). A double-jointed forceps with pivot removable so as to fit either joint. No other two-jointed forceps is figured or noted in Mulder's work. Nor is any such forceps represented in either of Kilian's atlases excepting that designed by Thureaud of New Orleans in the 19th century; its blades were reversible as in Tarsitani's and Rizzoli's forceps.

First edition of Chapman's "Essay on the Improvement of Midwifery." No drawing of his forceps (see 1735). Chapman mentioned in this edition how he fashioned a movable screw, and losing it at a delivery found that his forceps acted "much better" without it. That was really the origin of the English lock, perfected by Smellie. There is no evidence that Smellie had ever used the forceps at this date (1733), and McClintock believes that Chapman's example inspired him (*loc. cit.*, vol. i, p. 158).

Dr. Burton ("Dr. Slop"), St. John's College, Cantab, took the M.B. degree and began practice at Heath, near Wakefield.

Freake's forceps or "extractor" in use (see 1734).

1734. Death of Dusée, when De Wind was a pupil in his house (De Wind "'t Geklemd Hoofd geredit." See 1751; also Doran, "Dusée: His Forceps and his Contemporaries," *Journ. of Obst. and Gynæcol. of Brit. Empire*, 119, and "Dusée, de Wind and Smellie," *ib.*, 203).

Dr. Hody, F.R.S., publishes "Cases in Midwifry (*sic*): Written by the late Mr. William Giffard, Surgeon and Man Midwife" (see 1726). Hody dates his preface "July 30, 1733"; his title page bears the date 1734. Hody figures not only "Mr. Giffard's Extractor," but also "The Extractor as improved by Mr. Freke, Surgeon to St. Bartholomew's Hospital," without any

1. The date of Dr. Walker's death is unknown. Dr. William Douglas blamed Walker for spoiling the Chamberlain forceps by giving it a male and female blade. A sample of Walker's forceps is preserved in the Edinburgh Obstetrical Museum (Sir A. K. Simpson's "Invention and Evolution of the Midwifery Forceps," *Scottish Medical and Surgical Journal*, Dec. 1900).

mention of it in the text. No note of it by Freke himself is extant. It was the first forceps with jointed handle like Saxtorph's. See Doran, "Jointed Obstetric Forceps," *Journ. Obst. and Gyn. Brit. Empire*, vol. 24, p. 198.

Sir Miles Stapylton (Tory) elected a county member for Yorkshire largely through Dr. Burton's exertions. Great opposition from Sterne and his uncle who henceforward persecuted Burton.

1735. Second edition of Chapman's "Essays," published with a figure of his forceps (see 1732), and his *Apologia* (quoted in "Dusée: His Forceps and his Contemporaries," p. 131). He admits that he was wrong in not publishing "a Figure of my *Forceps*" in his first issue and therefore he now adds "an exact draught of it."

1736. John Douglas (see 1743) published his "Short Account of the State of Midwifery in London, Westminster, &c." He advocated the better training of midwives, objected to male obstetricians, and blamed Chapman for keeping his forceps secret for so long.

"Incogniti" the second, a forceps with the English lock published. See Mulder, *loc. cit.*, Pl. II, 4 and 5, and pp. 22, 23, where Du Pui states that this instrument was far superior to Chapman's.

[For observations on the discrepancy about Mulder's forceps marked "Incogniti," see "Dusée: his Forceps," &c., p. 138.]

Smollett enters Glasgow University as a student. Apprenticed to a surgeon.

An "Account of a Monstrous Child," by Dr. Burton, appeared in the Edinburgh "Medical Essays and Observations" (see 1733) for this year. It was a case of ectopia vesicæ.

1737. Smellie made use of Dusée's forceps and rejected them ("Treatise," McClintock's ed. MSS., Case 281, vol. ii, p. 375). Hence McClintock infers that Smellie had little, if any, experience of the forceps at that date.

Chapman published a Reply to Douglas' "Short Account" (see 1736).

Death of Guillaume Mauquest de la Motte. An adversary of Palfyn and disbeliever in the forceps. He was a great advocate of podalic version.

Manningham (see 1726) establishes a private lying-in home.

1738. Burton published his "Treatise on the Non Naturals."

Laurence Sterne ordained priest. Four days later made Vicar of Sutton-in-the-Forest, eight miles from York. Held the living till 1759.

1739. Smellie (born 1697 in or near Lanark) came up to London.

Smollett appointed surgeon to a King's ship.

Sir Richard Manningham publishes his "Artis Obstetriciæ Compendium tam theoriam quam praxin spectans."

1740. York County Hospital founded by Dr. Burton and his Tory friends; the Whigs opposed its establishment.

Pugh first used his forceps with pelvic curve about this year (see 1754).

1741. William Hunter came up to London and lived with Smellie.

Mesnard's *tenettes à cuiller,* which had blades that did not cross, reported by the inventor in the "Journal de Verdun."

Burton again assists in the election of the Tory County Member for Yorkshire, against Sterne's candidate (see 1734).

1742. Smellie's "Treatise on the Theory and Practice of Midwifery" first appeared as "A Collection of Cases and Observations in Midwifery."

1743. Mesnard describes his forceps in "Le guide des accoucheurs ou le Maistre dans l'art d'accoucher les femmes." Blades somewhat like Palfyn's, united by a chain.

John Douglas died (see 1736). His life was published by G. T. Bettany.

1744. Manningham's "Abstract of Midwifery for the Use of the Lying-in Infirmary" published.

Smollett, having given up the Navy, settled in Downing Street, Westminster.

Smellie introduced his special lock. "In his letter to Mr. John Gordon, surgeon, at Glasgow, dated Jan. 12th, 1747-8," Smellie says: "About *three years ago* I contrived a more simple method of fixing the steel forceps by locking them into one another by which means they have all the advantages of the firmer kind without their inconveniences." Smellie, *loc. cit.*, McClintock's ed., vol. i, p. 21. The letter was included in the answer to Dr. W. Douglas's first pamphlet.

1745. The Surgeons separate from the Worshipful Company of Barber Surgeons.

Smellie receives degree of M.D. Glasgow.

Burton arrested in York, suspected of complicity with the Young Pretender.

1746. Boehmer of Halle (1717—1789) translated Manningham's "Artis Obstetriciæ Compendium" (see 1726 and 1729), to which translation Mulder adds, *loc. cit.*, p. 25, "Gregorianæ forcipis delineationem simul et descriptionem satis accuratam subjunxit." Boehmer, in the appendix to this translation, headed "De Usu et Præsentia Forcipis Anglicanæ," describes Grégoire Junior's forceps of which no account by the inventor is known.

Smellie used his own short forceps and failed to deliver with

them (Case 381), its handles not yet "altered from crooks to wooden handles as I now (1751) have them."

Burton conveyed early in the year to London.

1747. Levret brings before the Paris Academy his forceps with *la nouvelle courbure* and describes it in his "Observations sur les causes et les accidens de plusieurs accouchemens laborieux" published in the same year; he also figures his forceps with the curve (see 1749 and 1751).

Rathlauw designed his forceps, but was forbidden to practise in Amsterdam, as he was not acquainted with the secret of Roonhuysen which the latter had bought of Hugh Chamberlen, Senior, who had retired to Holland and died there, at a date which has been lost. Rathlauw published "Het berugt geheim in de Vroedkunde van Rogier Roonhuysen outdekt en uitgegeven op hooge order door Jan Pieter Rathlauw, Vroedmeester" (Amst., 1747), exposing, as he believed, the secret. The proprietors of the secret, five obstetricians of Amsterdam, at once published a reply denying that Rathlauw had revealed any secret (see 1754, and Mulder, *loc. cit.*, p. 28). Rathlauw's forceps was, unless Schlichting's was of older date, the first which, like Assalini's, had its joint at the free end of the handle; his first pattern was not fenestrated, but he also described in his pamphlet another pattern with fenestrated handles, and the shank of one blade passes through that of the other.

Schlichting, in the same year, 1747, publishes his "Embrylucia nova detecta," and describes and figures a forceps very similar to Rathlauw's first pattern, having no fenestræ, and a joint as in Assalini's much later and better known instrument. He ascribed its invention to Brederode or Ruisch. (See Mulder, *loc. cit.*, p. 32.)

Burton discharged from his imprisonment in London (in March).

1748. William Hunter elected one of the surgeon men-midwives to the Middlesex Hospital, and soon after to the British Lying-in Hospital.

1749. An anonymous critic writes against Levret's forceps in the "Journal des Sçavans" (August), saying that the instrument was well-known but that nobody had ever had a single opportunity of using it (see 1751).

Burton publishes his "British Liberty Endangered," dedicated to the Archbishop of Canterbury, Thomas Herring, in which he reports how he was persecuted by his political enemies.

1750. First notice of Bing's forceps, Janck publishing at Leipzig his "Commentatio de forcipe ac forfice ferramentis a *Bingio* inventis, eorumque usu in partu difficili" (see 1751).

Tobias Smollett obtains in June the degree of M.D. from Marischal College, Aberdeen.

1751. Levret, in reply to his critic (see 1749), publishes his "Suite des observations sur les causes et les accidens," &c. (see 1747), reporting a case where his forceps was successfully used, the head presenting.

Smellie described his curved forceps in the same year. His "Essay on Midwifery," dated 1752, was issued in the previous year, being noticed in the "Monthly Review," December, 1751. Smellie already used forceps with wooden handles instead of crooks (see 1746), and Dr. William Douglas objected to the wooden forceps. In Case 269 Smellie "now substituted steel covered with leather in the room of wood which is not so durable." This is the only occasion on which he speaks of this short forceps, but there is no date. (McClintock, *op. cit.*, vol. i, p. 258.)

Paulus de Wind publishes "'t Geklemd Hoofd geredt," relating his association with Dusée (see 1734) and describing his own forceps, the blades of which were solid and completely separate, having no joint or lock, nor were they made to cross. See "Dusée, de Wind and Smellie: an Addendum," JOURNAL, vol. xxii (1912), p. 203. Mulder (*loc. cit.*, p. 41 and *footnote*) states that there was no date on the title page of this work, but that it came out about 1752. Professor Kouwer possesses a copy dated 1751.

Jens Bing, born in 1681 at Drontheim, Norway, died in Copenhagen, where he had a large practice and invented his forceps, non-fenestrated, and with long handles made to be detached. The object was the application of the blades with as little exposure as possible. Levret, in his "Suite des Observations," &c., condemns Janck and Bing for this alleged advantage in the "*forceps de Bingius.*"

Publication of Burton's "Essay towards a Complete new System of Midwifry." This is the "five shilling book upon the subject of midwifery" mentioned in "Tristram Shandy," Bk. I, Chap. xviii. His forceps had been already in use. He rightly condemned Smellie's practice of wrapping the blades in leather. See "Burton ('Dr. Slop'), his Forceps and his Foes," *Journ. Obst. and Gyn. Brit. Empire*, vol. 23, 1913, p. 1.

1752. Smellie, in Case 315, after-coming head, found that the short straight forceps was useless and made use of a longer curved instrument.

Smollett set up practice in Bath.

1753. In Case 352, Smellie completed delivery by the employment of a long double-curved forceps. "They were contrived *some years ago* by myself *as well as other practitioners* on purpose to take a better hold of the head when presenting and high up in the pelvis; but I did not recommend their use in such cases for fear of doing more harm than good by bruising the parts of the

woman when too great force is used." But Smellie had described his curved forceps in 1751 (see 1751).

Burton publishes his "Letter to William Smellie, M.D., containing Critical and Practical Remarks upon his Treatise on the Theory and Practice of Midwifery by John Burton, M.D. Wherein the various Gross Mistakes and dangerous Methods of Practice mentioned and recommended by that Writer are fully demonstrated and generally corrected," &c.

1754. Pugh, of Chelmsford, publishes his "Treatise of Midwifery," and speaks of "the forceps I invented upwards of fourteen years ago" (see 1740).

Rathlauw writes again on Roonhuysen's secret in reply to a violent attack on him, published at Amsterdam earlier in the same year. (Mulder, *op. cit.*, p. 29.)

On March 1 Smollett wrote to Dr. J. Moore showing that he had revised the second volume of Smellie's work. See Glaisher, "Smellie and his Contemporaries," Glasgow, 1894.

1755. In a case where the feet and hands presented, Smellie brought down the body and then delivered the head with double-curved forceps.

1756. Death of John Freake. He was born in London in 1688, elected assistant surgeon to St. Bartholomew's Hospital and full surgeon in 1729, when he became a F.R.S. He resigned in 1755 on account of gout and other infirmities. See Wadd's "Nugæ Chirurgicæ" and MSS. St. Bartholomew's Hospital Official Records.

Sir Richard Manningham's "Aphorismata Medica," the second edition of his "Artis Obstetriciæ Compendium" (see 1739) published.

1758. First volume of Burton's *Monasticon* appeared (the second was never published).

1759. Smellie retired from practice and went home to Lanark.

First part of "Tristram Shandy" said to have been published, or printed at least, at York (very doubtful). Johnson's "Rasselas" and Voltaire's "Candide" both appeared in this year.

Osiander born at Zell unter Aichelberg, Würtemberg.

1760. First part of "Tristram Shandy," including satirical sketch of Burton as "Dr. Slop," published in London.

1763. Death of Smellie, aged 66; he was interred in the burial ground of St. Kentigern's Kirk near Lanark.

1767. Stein, independently of other writers, notes how Levret modified his forceps more than once. (Mulder, *op. cit.*, p. 46.)

1768. Death of Sterne, March 18th (b. Nov. 24, 1713).

1769. R. Wallace Johnson, inventor of the perineal curve, published "A New System of Midwifery," where, according to

Aveling (" The Curves of Midwifery Forceps," Trans. Obst. Soc., vol. xx, p. 144) this new curve is first mentioned.

1770. Fried's forceps probably first used (see 1771).

Fourth edition of Levret's " Observations " and " Suite des Observations," published together. The drawing in the earlier editions in the first part, representing the three-bladed forceps and the two-bladed forceps with *axe ambulant,* is reproduced, and the *forceps à courbe,* with a simple lock, is represented in the *Suite.*

1771. Fries, a pupil of Fried's, describes Fried's forceps in his *Dissertatio de usu forcipis in partu.* " It has Levret's blade and Smellie's handle and lock." Mulder believed that the arrangement by which one handle moved by aid of a screw on its own axis was suggested by Frère Jean de Come's lithotomy forceps (*op. cit.,* p. 55).

Smollett dies in his estate. Francis Drake, Burton's surgical colleague, dies at Beverley.

1774. Leake, of the Westminster Hospital, in his " Lecture Introductory to the Theory and Practice of Midwifery, including the Description and Use of a New Forceps," publishes an account of his three-bladed forceps (see Denman, 1783). J. L. Petit's forceps, " already long in use " (Mulder, *op. cit.,* p. 57), first described and figured in Lesne's *Traité des maladies chirurgicales et des opérations qui leur conviennent.* Admittedly a modification of Grégoire's instrument, it has a catch on one handle with teeth on the opposite side, to regulate the pressure on the fœtal head during extraction.

1776. In a copy of Schlegel's translation of Mulder's work once left by Dr. Rigby to the Obstetrical Society of London and now in the library of the Royal Society of Medicine, Rigby marks in pencil, p. 80—" My manuscript copy of *Lowder's* lectures is 1776 " (see 1783).

1777. Van de Laar describes his forceps " Schets der geheele Verloskunde geschikt om derselver grondbeginzels volkomen te leeren." 's Gravenhaage, 1777. Van de Laar introduced *axis traction,* this year, by drawing directly from the blades by means of a rod, which was straight. In 1844 T. Homann devised a straight rod; in 1877 Tarnier introduced curved axis tractors. See Katherine Drinkwater, M.B., " The Midwifery Forceps: Historical Sketch,"*Liverpool Med. Chir. Journ.,* July 1913, p. 451. For Van de Laar's forceps see Mulder, *op. cit.,* p. 59, and pl. vi, figs. 11 and 12.

Coutouly junior's forceps described by Catalan in the " Journal de Paris," Dec. 6; it closely resembled Levret's forceps (see 1788). (Mulder, *op. cit.,* p. 60.)

1781. Péan's forceps adopted by J. L. Baudelocque in his Art

des Accouchemens. See 1789 and Note 2, "The Baudelocque Family."

1782. Lowder, in M.S. lectures on the "Theory and Practice of Midwifery" (Lib. Royal Soc. Med), mentions Orme as modifying Smellie's forceps. See Doran, "A Demonstration of some Eighteenth Century Obstetric Forceps," Proc. Royal Soc. Med., 1913, vol. vi, Sec. History Med., p. 54.

1783. Sleurs describes his vectis and a double vectis making a forceps, in his "Vroed en werktuigkundige proefnemingen waar door de Hefboom verbeterd en deszelvs gebruik, tot redding van de geklemde of door de beenderen des bekkens opgehoudene hoofden, uitgestrekter en veiliger gemaakt word," a pamphlet published in this year in Utrecht.

Denman publishes an anonymous pamphlet on Leake's three-bladed forceps: "A Vindication of the Forceps described and recommended by Dr. Leake; by a Late Pupil of Dr. Leake's." (See 1774.) Osborn's forceps is mentioned, p. 19.

Carl Gottlob Kühn publishes the first printed account of Orme's and of Lowder's forceps in a thesis, reprinted in 1827 with his other works under the title "Opuscula Academica Medica et Philologica."

1784. Young of Edinburgh's forceps, of the R. Wallace Johnson type (see 1769), mentioned in the edition of Smellie's Midwifery published this year, vol. iii, fig. 40.

Evans of Oswestry's forceps, also of the R. W. Johnson type, likewise described in the same edition of Smellie's work. The blades had the double Johnson's curve and did not diverge immediately above the lock but ran straight and parallel for some distance. Hence Evans' forceps is the prototype of Simpson's and similar instruments invented in the nineteenth century, where there is a gap between more or less parallel and straight shanks, modified as a ring in Hopkins' and, later, in Barnes' forceps.

First edition of Aitken's "Principles of Midwifery or Puerperal Medicine." He mentions his modified lock.

1785. Mayer writes on Levret and modifies his forceps.

Second edition of Aitken's "Principles," includes a drawing of his forceps applied to the after-coming head.

Starke of Jena's forceps described by his pupil, Döbner (Mulder, *loc. cit.*, p. 74).

1786. Third edition of Aitken's "Principles." Besides the graduated lock there was a wide space between the shanks of the blades for the obstetrician's middle finger, while there was a blunt knob on the upper border of each handle, close to the lock on which the fore and ring fingers rested. ("By this disposition the mother's parts are fully protected.") The knobs did not correspond to the flanges or finger rests (see 1796, and Doran, "Eighteenth Century

Forceps," " 17th International Congress, 1913, Section 23, History of Medicine," p. 454).

1788. Coutouly's modification (see 1777) made known by Mithof in his " Nouveaux Forceps, presentés à l'Académie Royale de Chirurgie, à la séance publique en 1788, M. Coutouly " (Mulder, *op. cit.*, p. 77).

1789. J. L. Baudelocque admits of priority of Péan in design of forceps named Baudelocque's (see 1781). See Mulder, *op. cit.*, p. 61.

1791. Matthias Saxtorph publishes a paper at Copenhagen on his forceps (see Mulder, *op. cit.*, p. 81), with handles made to fold on the blades. A similar forceps, Levy's modification, was still used in Denmark in 1866. See " Catalogue and Report of Obstetrical, etc., Instruments exhibited at the Conversazione of the Obstetrical Society of London, 1866," p. 95.

1792. Osborn's " Essays on the Practice of Midwifery " published. It included a drawing of the author's forceps with measurements, but the instrument is more fully described in Mulder's " Historia Forcipum," p. 82, and pl. vi, figs. 5 and 6. Osborn's and Saxtorph's forceps were short, yet had a pelvic curve like in Levret's long forceps.

Thynne, about this year, introduced a similar forceps, of the same length as Osborn's but with longer blades and therefore shorter handles. See Mulder, " Historia Forcipum," pl. vi, figs. 9 and 10, p. 85. " Doct. Thynne, Prælector etiam Artis Obstetriciæ Londiniensis." A manuscript copy of notes from Dr. Thynne's lectures (Lib. R.C.S. Eng.) contains no mention of his forceps which Mulder copied "ab ipsa instrumenta."

Dr. G. Rees dedicated his " Observations on Diseases of the Uterus " (1805) to Thynne as a leading authority.

1793. Denman publishes his "Aphorisms on the application and Use of the Forceps and Vectis " (Mulder, *loc. cit.*, p. 84 and *footnote*, pl. vi, figs. 7 and 8).

Hamilton's jointed forceps first described in Andrew Duncan's " Medical Commentaries " for 1793, decade 2, vol. viii, p. 405. See also Doran, " Jointed Forceps," *Journ. of Obst. and Gyn. of Brit. Empire*, vol. 24 (1913), p. 204.

Rawlins, of Oxford, publishes "A Dissertation on the Structure of the Obstetric Forceps, pointing out its defects, and especially of those with Double Curved Blades." Rawlins' work gained the approval of Mulder who describes the forceps and figures the " *Brachium forcipis* RAWLINSII " (*loc. cit.*, p. 160, and pl. xi, pp. 3 and 4). Nearly thirty years later David Davis attacked Rawlins, and commented unfavourably on Mulder (see above, 1724, *footnote*).

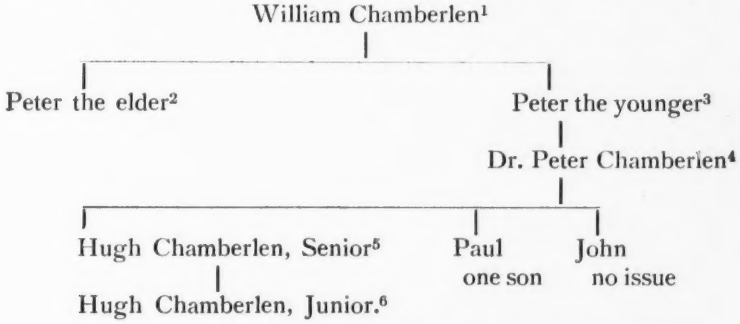
1794. Mulder's " Historia Litteraria et Critica Forcipum et Vectium Obstetriciorum " published at Leyden. See 1798.

1796. Johann David Busch publishes his "Beschriebung einer neuen Geburtszange, nebst einigen Beobachtungen über ihre Anwendung" in Stark's *Archiv für die Geburtshülfe*, etc., vol. vi, pt. 3. It is the first instrument that bore flanges or finger rests, adopted by Naegeli and Simpson afterwards, and constructed with joints by Stoltz (1839) and Levy (1866). See "Eighteenth Century Forceps," noted above under Aitken, 1786, p. 450.

1798. Schlegel's translation of Mulder's "Historia Forcipum" appears, under the title "Litterärische und Kritische Geschichte der Zangen und Hebel." He refers to Osiander as the introducer of the forceps coated with rubber (appendix, p. 120), but makes no mention of that obstetrician's own forceps which were introduced about this year if not earlier. See "Mursinna: Osiander, Weissbrod. A Study of Forceps," *Journ. of Obst. and Gyn. Brit. Empire*, vol. xxiv, 1913, p. 1. Mursinna probably made use of his forceps, first described in 1803, before the end of the eighteenth century.

NOTE. 1. THE CHAMBELEN FAMILY.

From Aveling's "The Chamberlens and the Midwifery Forceps."



NOTE. 2. THE BAUDELOCQUE FAMILY.

Professor Paul Bar has kindly forwarded me the genealogy of this family, which was as obstetrical as the Chamberlens. They

1. He had two other sons besides the two Peters, and one daughter.

2. He had one child, a daughter, whose husband's name was Cargill; they had six children.

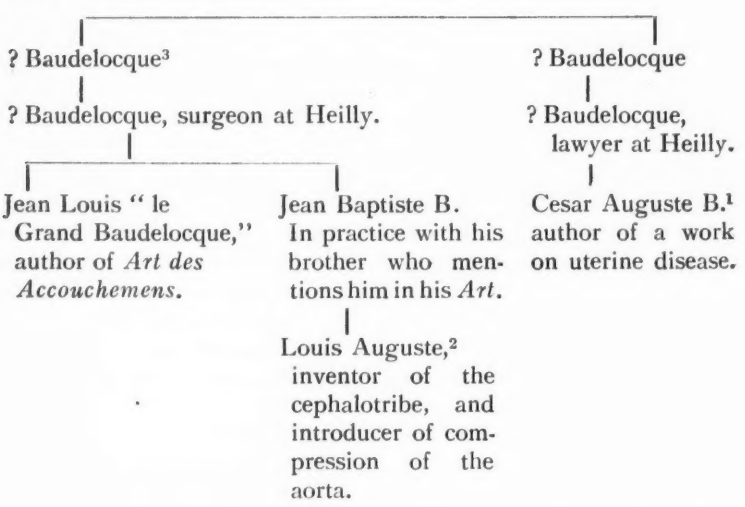
3. Beside Dr. Peter, Peter the younger had seven children, of which four were sons.

4. Besides Hugh C., Senior, Paul and John, Dr. Peter C. had six children, all but one of whom were sons.

5. Besides Hugh C., Jun., Hugh, Senior, had three children, two of whom were sons.

6. Hugh C., Jun., had one child, a daughter, by his first wife, and two children, both daughters, by his second, but none by his third wife, Lady Carew. The relationship of Walker's "grandson to the fore-mentioned Dr. Peter Chamberlain" (see 1728) is not made out in this table.

have been traced to two brothers whose Christian names have not, I understand, been preserved.


? Baudelocque[3]
? Baudelocque, surgeon at Heilly.
Jean Louis " le Grand Baudelocque," author of *Art des Accouchemens.*
Jean Baptiste B. In practice with his brother who mentions him in his *Art.*
Louis Auguste,[2] inventor of the cephalotribe, and introducer of compression of the aorta.
? Baudelocque
? Baudelocque, lawyer at Heilly.
Cesar Auguste B.[1] author of a work on uterine disease.

1. and 2. Louis Auguste and César Auguste are often spoken of as brothers, but this table shows that they were distant cousins.

3. " ? " before four names in the above genealogical table means that the Christian name is uncertain. Jean Louis was the Baudelocque who approved of Péan's forceps (see 1781). His brother, Jean Baptiste, took his part actively in his quarrel with Herbinaux.

Observations on the Frequency of Puerperal Eclampsia in Trinidad, with an Analysis of 22 Consecutive Cases at the Colonial Hospital, Port-of-Spain.

By R. SCHEULT, M.D. (Edin.),

Resident Surgeon, Colonial Hospital, Port-of-Spain, Trinidad.

ALTHOUGH the frequency of puerperal eclampsia is a subject which has received at various times and places the careful attention of numerous observers, I propose, in view of the remarkable prevalence of the disease in this colony to offer some observations on it.

For many years the large proportion of cases attacked by this disorder among the women who enter our maternity hospital attracted my notice and appeared to be a matter worthy of careful consideration. And even though I have not been able to throw much new light upon the difficult and complex problem of the causation of this disease, it may be of interest to submit all the information I have been able to collect from our records that seems to bear on this important question.

The Victoria Maternity Hospital serves Port-of-Spain, which is the chief town of the island, and has a population of about 60,000 inhabitants.

During the six years beginning with April 1, 1908, and ending with March 31, 1914, there were 2,847 deliveries in this institution, and of these 122, or 1 in 23, were complicated with eclampsia.

Although the incidence of the disease in the colony generally does not reach this large percentage its frequency all over the island is nevertheless remarkably high, as will be shown presently. It is interesting to contrast these figures with those obtained from the reports of similar institutions; Dr. Jellett, in his manual of midwifery, states that the statistics of a large number of cases drawn from various British and Continental hospitals give a rate of 1 in 357.48. Professor Williams of Baltimore, in his text-book on Obstetrics, gives a table which shows that eclampsia occurs in about one per cent. of the women entering lying-in hospitals. I find, according to the annual reports of the Rotunda Hospital, there were during the three years ended October 31, 1913, 6,356 deliveries in the intern department with 33 cases of eclampsia—a rate of 1 in 192, and although there were 6,904 confinements in the extern department during the same period, no cases of eclampsia were recorded amongst these. At the Queen Charlotte's Hospital, there were from 1906 to 1911 inclusive, 8,856 cases delivered and 56 cases of eclampsia—a proportion of 1 in 158. From 1908 to 1913 there were 7,850 deliveries and 42 eclampsia cases, *i.e.*, 1 in 187 at the Manhattan Maternity and Dispensary.

Hence it will be seen that while the frequency of eclampsia varies greatly in different clinics the proportion of 1 in 23 in our Victoria Maternity is extraordinarily high.

The colony and its chief town, Port-of-Spain, according to the census enumeration of 1911, had a population of 333,552 and 59,796 respectively.

The annual reports of the Registrar-General show that during the three years ended March 31, 1914, there were 6,122 births in Port-of-Spain, and in that period 24 women died from eclampsia; in the whole colony during the same period there were 35,425 children born and 82 deaths from this disease.

Assuming that the condition was fatal in 23 per cent. of the cases—a mortality rate slightly higher than that recorded in our maternity hospital returns and presumably a fair estimate for our calculation—the entire number of eclampsia cases occurring in Port-of-Spain for those three years was 104.39, and in the whole colony 356.5. It would appear, therefore, from these data that the percentage of eclampsia in Port-of-Spain is 1 in 58.64, and in the colony 1 in 99.36. Three years is, of course, a very short period upon which to base conclusions, but previous to 1911—1912 the returns of the Registrar-General bearing on this point are not sufficiently complete to be of any value in the study of this question.

There are, I am aware, other sources of fallacy in this computation; some of the births for instance were plural, and errors as to the cause of death given by the medical attendant may also be a disturbing factor of some account; but on the whole the figures given above may be accepted, I think, as approximately correct and sufficiently reliable for the purpose of this paper.

While the statistics given by authorities on this disease differ greatly in regard to the proportions of pregnant women attacked by eclampsia—the proportions ranging from 1 in 500 to 1 in 250—the proportionate frequency of eclampsia in the colony is very high compared with even the highest of these estimates.

Although the pathogenesis of this condition is by no means perfectly clear, the toxæmic theory—enunciated as far back as 1848 by Virchow and supported by clinical and post-mortem evidence—has been definitely established. It is extremely difficult, however, to account satisfactorily for the production of this toxæmia in such a large proportion of our parturient women. It seems at present impossible to explain why one individual develops toxæmia while another under apparently similar conditions does not; the fact is that the exact or essential cause of eclampsia is still an elusive mystery, and the disease, in spite of many hypotheses, remains as Zweifel has designated it, "the disease of theories."

The observation that chronic nephritis is a very common disease in this colony—supposed by some to be due to repeated malarial

infections—forced itself upon me, and led me at one time to the conclusion that renal inefficiency may after all be a dominating factor in the production of eclampsia among our maternity patients; for while the healthy kidney may be capable of eliminating the eclamptic poison—whatever may be its nature or origin—the diseased organ probably retains it with consequent accumulation of the offending agent and the production of serious intoxication. Not many years ago B. C. Hirst in discussing, at the Philadelphia Medical Society, the question of renal inefficiency in connection with eclampsia, stated that the products of fœtal metabolism discharged into the maternal blood were the chief predisposing causes of eclampsia, and insufficient elimination by the maternal kidneys was the chief exciting cause. In any case the importance of the kidney function in this condition cannot be altogether ignored as proved by the post-mortem findings which show degenerative changes brought about in this organ in consequence of the toxæmia; it seems reasonable also to infer that the toxin would act more injuriously on the damaged than on the healthy organ and so add to the gravity of the condition.

Tables I and II, attached to this report, show the principal causes of death in Port-of-Spain and in the colony during the six years ended March 31, 1914.

Table III shows the total number of patients admitted to the Colonial Hospital and the chief diseases treated in that institution during the same period 1908—1909 to 1913—1914.

From these figures some notion of the prevalence of kidney disease in the colony may be formed. I may add that the post-mortem records at the hospital support the clinical evidence of the frequency of nephritis, and show that the condition is mainly of the cirrhotic type. Although the great prevalence of nephritis may favour the frequency of eclampsia in the colony I am not satisfied that this disposes of the question. The records of the 122 cases of eclampsia show that while albumen was present in the urine in every instance with only one exception, and abundantly so in more than half the cases, there were among the 94 recoveries 55 patients in whom the albuminuria was transient and only in 4 in whom it was persistent. With regard to the remaining 35 cases the records show that in 10 of them there was marked diminution of albumen on their discharge between 5 and 21 days after confinement, and that in 24 no note was made of the condition of the urine subsequent to delivery. In one case there was no albuminuria at any time.

It was observed in 6 cases that the urine showed no albumen at the onset of the attack but became albuminous after the appearance of convulsions and then cleared up during the puerperium, which goes to show that albuminuria is a phenomenon secondary to toxæmia.

Our maternity returns also show that among the 2,847 women who were delivered during the six years under review there were 1,041 primiparæ and 1,806 multiparæ; among the former it was found that 207 had albuminuria and that 77 of these were attacked by eclampsia, whereas among the latter 336 had albumen in their urine and 45 of these developed the disease. These figures include 4 primiparæ and 2 multiparæ who showed albuminuria subsequent to the eclamptic attack. Among the 77 primiparæ who were treated for eclampsia, 6 returned for subsequent confinement and showed no repetition of the eclamptic condition and no albumen in their urine. Two multiparæ, one in her second and the other in her third pregnancy, were admitted to hospital with eclampsia; the former returned for her third confinement and the latter for her fourth and fifth without any eclamptic symptoms or evidence of albuminuria. Two multiparæ gave a history of previous attacks in their first pregnancies; another developed the disease in her eleventh pregnancy which was followed by a normal gestation and by eclampsia in her thirteenth pregnancy.

Excluding the eclamptic cases there were 170 primiparæ, or 17.6 per cent., and 281 multiparæ, or 15.9 per cent., who had albuminuria on admission. Among the former this condition was transitory in 21 instances, and among the latter it was temporary in 19 and permanent in 19 cases; the remaining 149 primiparæ and 243 multiparæ were discharged before this question could be definitely determined. There is no reason to believe that kidney disease is more common in primiparæ than in multiparæ; on the contrary it seems more reasonable to infer that the opposite condition obtains, and indeed the 19 cases in which chronic nephritis complicated pregnancy in this series occurred only in multiparæ. It would appear therefore from these observations that while nephritis may favour the production of eclampsia it cannot be considered to be even an important, much less an essential, contributory cause of the condition.

Nineteen cases of chronic nephritis among 2,847 deliveries in a community where the disease is so common seems a small proportion, but I believe the explanation lies in the fact that a large number of pregnancies associated with chronic nephritis are interrupted early in their course.

As the pathological changes found in the liver in association with eclampsia are even more constant and characteristic than those observed in the kidneys, attention has been directed to the hepatic function, and various theories have been propounded to show that in this organ resides the whole secret of the causation of the disease. A relative insufficiency of the liver function during pregnancy has been advanced as the cause of eclampsia, and it is held that the failure of this organ to neutralise certain poisonous products of

metabolism gives rise to an auto-intoxication which in turn reacts on the kidney and thus incites the phenomena associated with the condition. This view may be correct, but I am not able to furnish any evidence to show why this hepatic inefficiency should be of such frequent occurrence among our pregnant women; it is true that hepatic derangements due to malaria and climatic influences are common here as in all tropical countries, but I can offer no evidence to prove that the exhibition of eclamptic symptoms is in any special way connected with hepatic disorders. Personally I have never observed the association of eclampsia with previous or concomitant hepatic disturbances.

In considering the predisposing causes of eclampsia we find that primiparity plays here a very important part, and this agrees with the experience of every observer on the subject. According to our returns 1,041 primiparæ and 1,806 multiparæ were delivered during the six years ended March 31, 1914. Among the former 77, or 1 in 13.5, and among the latter 45, or 1 in 40, developed eclampsia.

The influence of twin pregnancy on the production of the disease in this series is also interesting. There were 69 twin pregnancies among the 2,847 deliveries, or 1 in 41; 13 occurred in primiparæ and 56 in multiparæ. Among the former albuminuria was present in 6 and absent in 7 cases, and among the latter the corresponding figures were 21 and 35. Eclampsia was associated with 7 twin pregnancies—occurring in one primipara and in six multiparæ. These 7 cases showed on admission a considerable amount of albumen in the urine. In the case of the primipara and in two multiparæ the condition was transitory. Two multiparæ died during the attack, and in the remaining two no record was made of the condition of the urine after confinement.

Eclampsia therefore occurred in 10 per cent. of the twin pregnancies, or 1 in 10, whereas the ratio of eclamptic cases to the total number of deliveries was 1 in 23. A study of these figures brings out also the interesting point that although albuminuria was proportionately more frequent in primiparæ than in multiparæ with twin pregnancy, the proportion of eclamptic cases among the former was 1 in 13 whereas in the latter it was 1 in 9.

As regards age, the youngest patient in whom eclampsia occurred was 14 and the oldest 42 years of age. Of the 122 cases, 106, or 87 per cent., occurred in women between the ages of 14 and 30; here, probably, the real factor was primiparity. (See Table IV.) Moral causes, in my opinion, do not exercise here any influence of importance on the frequency of the disease, although nearly 90 per cent. of the women who are delivered in our maternity hospital are unmarried; the class of patients who seek admission do not appear to suffer from shame or mental distress in consequence of their illegitimate pregnant condition. Neither can starvation, poverty,

nor insanitary conditions be invoked as favouring influences here; practically all the patients in my series were well nourished women and the conditions under which they lived appeared satisfactory, nor do I think that unsuitable diet can be adduced as a factor in the causation of the disease; the class from whom our maternity patients are drawn subsists mainly on a bland vegetable diet.

A brief reference to meteorological conditions in the colony during the six years ended March 31, 1914, may prove of some interest. I am indebted to Mr. W. G. Freeman, Acting Director of Agriculture, for the following information :—

The mean annual temperature taken in Port-of-Spain, in St. Clair, 66 ft. above sea level, from 1908—1909 to 1913—1914 was 77.6° with a mean maximum of 85.9° and a mean minimum of 69.4°, showing a mean annual fluctuation of 16.5°. The highest annual record in that period was 86.8° and the lowest 67.5°.

The barometric mean for the same period was 29.991 inches, and the mean annual rainfall 54.4 inches. The highest annual rainfall recorded was 68.2 inches and the lowest 39.5.

The mean annual relative humidity was 81, with a maximum record of 86 and a minimum of 79 per cent. of saturation. The relative humidity is lowest in the dry season, which lasts from January to May, and the highest in the wet months, from June to December, with the exception of October which is usually hot and dry. The most humid month, as far as the actual amount of vapour in the air is concerned, is May, which is the hottest month of the year; the next hottest are March and April, and the coolest November, December and January; February, March and April are the driest months; June, July and August the wettest. The rainy season begins in June and except for a dry spell in October continues until December.

Table V shows the incidence of eclampsia during each month of the year so far as the 122 cases that came under my observation are concerned. From this table it will be seen that there was no special preponderance of eclampsia in any month or particular season, but it is interesting to note that the smallest number of cases occurred in the second quarter of the year, that is, at the end of the dry season and the beginning of the wet weather. Apart from this fact and the undoubted influences of primiparity and pluriparity there are no demonstrable predisposing factors of importance to note.

An analysis of the 122 eclamptic cases show that 63.1 per cent. occurred in primiparæ and 36.9 per cent. in multiparæ; that the attack supervened before labour in 40.16 per cent; during labour in 23.77 per cent., and after labour in 36.06 per cent.

The proportion of post-partum eclampsia appears high as compared with the statistics of other observers. There is, however,

no doubt as to the accuracy of the number given, for while it may be difficult to differentiate in some instances between ante-partum and intra-partum eclampsia the results obtained with reference to post-partum eclampsia cannot be questioned.

The number of convulsions varied between 1 and 28; the average number being 5.6; as some of the cases were admitted after the onset of convulsions absolute accuracy is not claimed with regard to this observation, as the information obtained from patients and their friends is often unreliable.

In the 122 cases of eclampsia a fatal result to the mother occurred in 28 instances, or 22.9 per cent.; 17 were primiparæ and 11 multiparæ. The percentage of deaths among the ante-, intra- and post-partum cases was 36.7 per cent., 20.6 per cent. and 9 per cent. respectively.

Forty-four infants perished in the course of parturition among the 129 born; this gives a mortality rate of 34 per cent.; there were 11 infants who died between 17 hours and 9 days after birth, due to convulsions in one instance and to prematurity in the rest; including these deaths the fœtal mortality was 42 per cent. In 27 cases the infant alone perished; in 12 the mother alone, and in 16 cases both mother and infant died, including twins in one case. Four patients recovered from the attack without the supervention of labour; three of these went on to term and one delivered prematurely during a recurrence ten days after recovery from the initial attack.

Two primiparæ and one multipara showed marked mental disturbance after confinement; in one case it was necessary to transfer the patient to a lunatic asylum for treatment; convulsions were numerous in these cases and occurred before, during and after labour. Two multiparæ suffered from temporary loss of vision; albuminuria was very marked in both cases and appeared to be permanent in one. Unfortunately no ophthalmoscopic examination was made in these cases.

It is interesting to note that a full-term apparently healthy child born of an eclamptic mother developed convulsions 17 hours after birth and quickly perished; it is difficult to say whether the condition was eclamptic in nature. No post mortem examination was allowed.

While fully conscious of the fact that these observations are incomplete and have added little that is new to our knowledge of the subject, I venture to hope that the facts and figures set forth in this paper may still prove to be of some value and interest.

TABLE I.

Showing the principal causes of death in Port-of-Spain from 1908—1909 to 1913—1914.

Cause of Death.	1908-1909.	1909-1910.	1910-1911.	1911-1912.	1912-1913.	1913-1914.	Total.
Malaria	60	44	37	38	42	36	257
Dysentery	32	48	49	44	81	43	297
Pulmonary Tuberculosis	215	281	258	271	286	218	1529
Bronchitis	34	54	56	86	65	49	344
Acute Lobar Pneumonia	79	86	87	63	74	71	460
Diarrhœa and Enteritis	214	242	196	214	273	150	1289
Ankylostomiasis	29	39	40	24	23	37	192
Enteric Fever	42	37	35	45	83	43	285
Anæmia Chlorosis	27	13	11	25	10	13	99
Organic Disease of the Heart ...	89	94	93	76	70	73	495
Nephritis (including Acute and Chronic Nephritis and Uræmia)	96	139	128	106	123	162	754
Other Diseases	836	885	909	895	933	827	5285
No. of deaths from all causes ...	1753	1962	1899	1887	2063	1722	11286

TABLE II.

Showing the principal causes of death in the Colony of Trinidad from 1908—1909 to 1913—1914.

Cause of Death.	1908-1909.	1909-1910.	1910-1911.	1911-1912.	1912-1913.	1913-1914.	Total.
Malaria	712	623	520	683	868	767	4173
Dysentery	330	354	263	393	947	660	2947
Pulmonary Tuberculosis	523	446	452	614	555	507	3097
Bronchitis	281	305	344	362	462	299	2053
Acute Lobar Pneumonia	293	280	339	204	238	243	1597
Diarrhœa and Enteritis	1083	922	855	899	1294	754	5807
Anklyostomiasis	145	205	217	212	269	234	1282
Enteric Fever	61	60	65	87	151	102	526
Anæmia Chlorosis	210	145	162	216	231	131	1095
Organic Disease of the Heart ...	233	282	285	233	206	245	1484
Nephritis (including Acute and Chronic Nephritis and Uræmia)	269	332	327	314	381	437	2060
Other Diseases	3387	3262	3242	3259	3743	3298	20191
Total deaths from all causes ...	7527	7216	7071	7476	9345	7677	46312

TABLE III.

Showing the chief diseases treated at the Colonial Hospital, Port-of-Spain, from 1908—1909 to 1913—1914.

Disease.	1908-1909.	1909-1910.	1910-1911.	1911-1912.	1912-1913.	1913-1914.	Total.
Malaria	590	449	380	445	567	436	2867
Ankylostomiasis	239	236	248	245	294	200	1462
Nephritis, Acute	30	21	39	21	25	19	155
Nephritis, Chronic	222	195	236	205	210	222	1290
Uræmia	3	3	—	2	11	—	19
Phthisis Pulmonalis	240	239	219	144	188	152	1182
Bronchitis, Acute	16	17	29	59	62	22	205
Bronchitis, Chronic	67	128	147	108	85	91	626
Acute Lobar Pneumonia	113	70	65	71	117	101	537
Enteric Fever	85	105	82	148	186	119	725
Mitral Regurgitation	67	72	88	76	57	46	406
Aortic Regurgitation	14	19	17	34	28	39	151
Dysentery, Acute	76	95	88	65	132	82	538
Dysentery, Chronic	23	31	30	27	55	31	197
Diarrhœa, Acute	69	58	65	112	58	66	428
Diarrhœa, Chronic	55	76	39	30	27	12	239
Other Diseases	4482	4706	4315	5047	4659	4211	27420
Total treated	6391	6520	6087	6839	6761	5849	38447

TABLE IV.

Showing the age of the 122 eclamptic cases treated in the Maternity Hospital, Port-of-Spain, from 1908—1909 to 1913—1914.

Ages.	14 years.	15-19.	20-24.	25-29.	30-34.	35-39.	40-44.	Total.
	1	47	37	21	10	5	1	122

TABLE V.

Showing the number of eclampsia cases treated each month in the Maternity Hospital, Port-of-Spain, from 1908—1909 to 1913—1914.

Month.	1908-1909.	1909-1910.	1910-1911.	1911-1912.	1912-1913.	1913-1914.	Total.	
April	—	—	—	1	1	1	3	
May	1	3	1	2	—	—	7	13
June	1	—	—	1	—	1	3	
July	3	—	1	2	4	1	11	
August	3	—	—	1	4	1	9	30
September	1	2	3	2	2	—	10	
October	2	3	1	3	2	3	14	
November	2	4	—	3	1	3	13	42
December	4	1	2	—	6	2	15	
January	—	2	—	3	3	3	11	
February	1	—	—	5	5	1	12	37
March	4	2	1	4	2	1	14	
Total	22	17	9	27	30	17	122	

ANALYSIS OF 122 CASES OF ECLAMPSIA TREATED IN THE VICTORIA

Year.	Admissions.	Deliveries.	Primiparæ.	Multiparæ.	Number of Twin Pregnancies.	Cases of Eclampsia.	Primiparæ.	Multiparæ.	Frequency.	Occurrence of Attack. During Pregnancy	Occurrence of Attack. During Labour.	Occurrence of Attack. During Puerperium.	Average number of Fits.	Condition of Urine.
1908–9	609	483	188	295	9	22	15	7	1 in 22	10	6	6	9·1	On admission, albumen in 21 cases, abundant in 8. One case had albumen after eclampsia. Among the 18 recoveries albumen transient in 13, a trace on discharge a week after delivery. In 2 cases no note of the condition recorded.
1909–10	565	468	169	299	8	17	14	3	1 in 27·5	7	2	8	5·4	On admission, albumen in 16 cases, abundant in 8. Among the 14 recoveries albumen transient in 7, unchanged in one 10 days after delivery, much less in 2 cases within 12 days of labour, and in 3 cases no observation was recorded. One case never had any albumen in the urine.
1910–11	549	453	164	289	9	9	6	3	1 in 50·3	·4	2	3	5·8	On admission, albumen in 8 cases, abundant in 5. Among the 8 recoveries albuminuria was transient in 5 No observation in 1 cases.

MATERNITY DURING THE SIX YEARS ENDED 31ST MARCH, 1914.

Result to Mother.	Result to Child.	Remarks.
4 died.	9 still-born.	(1) In one case the disease occurred in the 6½ month of pregnancy; recovery followed, but patient returned in labour 10 days later. She had one convulsion during labour, and was delivered of a premature male child, who died 38 hours after birth. (2) A primipara, aged 17, recovered from the eclamptic attack, but succumbed to puerperal fever 6 days after parturition. (3) A primipara, aged 20, showed marked mental disturbance 5 days after confinement; she was discharged 18 days later in same mental condition. The convulsions were numerous in the case, and occurred before, during and after labour; albumen, which was moderate in amount, disappeared in 12 days. (4) A multipara, aged 24 showed, on admission, no albumen in the urine. She was delivered of a full-term child, and 30 hours later eclampsia supervened. After the appearance of convulsions the urine showed a trace of albumen which cleared up a few days later. (5) A full-term apparently healthy child developed convulsions (eclamptic?) 17 hours after birth, and quickly perished. (6) Eclampsia did not occur among the twin pregnancies (9), but albuminuria was present in one primipara and one multipara. (7) The 4 deaths occurred in cases of acute-partum eclampsia.
3 died.	2 still-born.	(1) A primipara, aged 19, recovered from eclampsia, but died of puerperal septicæmia 8 days after parturition. (2) A multipara, aged 32, who in a previous pregnancy suffered from eclampsia, was admitted in the 7½ month of gestation; her urine was free from albumen; she had two convulsions, and the pregnancy ran a normal course to full term without any further complication. (3) Four prematurely born children died a short time after birth. (4) There was no eclampsia among the 8 twin pregnancies; albuminuria was present in one primipara. (5) The three deaths occurred in acute-partum cases of eclampsia.
1 died.	6 still-born.	(1) A primipara, aged 17, was admitted in the first stage of labour. Urine was free from albumen. After confinement eclampsia developed and urine became albuminous for a short time. (2) A primipara, aged 22, became queer in manner 5 days after parturition. The convulsions were numerous in the case and occurred before, during and after labour. (3) There was only one twin pregnancy complicated with eclampsia; this occurred in a multipara, aged 30; a considerable amount of albumen was present in her urine; 7 days after parturition only a trace of albumen was found. The first child was born dead, and the second lived 9 days. (4) A primipara with twins showed abundant albumen in the urine, but did not develop eclampsia. (5) The one death occurred in an ante-partum case of eclampsia.

Analysis of 122 Cases of Eclampsia Treated in the Victoria

Year.	Admissions.	Deliveries.	Primiparæ.	Multiparæ.	Number of Twin Pregnancies.	Cases of Eclampsia.	Primiparæ.	Multiparæ.	Frequency.	Occurrence of Attack. During Pregnancy	Occurrence of Attack. During Labour.	Occurrence of Attack. During Puerperium.	Average number of Fits.	Condition of Urine.
1911–12	555	491	172	319	19	27	13	14	1 in 18·2	8	8	11	5·8	On admission, albumen in 26 cases, abundant in 17. Among the 22 recoveries albuminuria was temporary in 8, permanent in 2. No observation in 12 cases.
1912–13	557	475	176	299	10	30	20	10	1 in 15·8	12	8	10	5·1	On admission, albumen in 27 cases, abundant in 19. Among the 20 recoveries albuminuria was transient in 16 cases. No observation in 4 cases.
1913–14	579	477	172	305	14	17	9	8	1 in 28	8	3	6	6·5	On admission, albumen in all the cases, abundant in 14. Among the 12 recoveries albuminuria was transient in 6. Less albumen in 5 cases who were discharged 5, 7, 9, 16 and 21 days respectively after labour. Still very albuminous in 1 case on discharge 12 days after labour.
	3414	2847	1041	1806	69	122	77	45	1 in 23·3	49	29	44	6·3	

Result to Mother.	Result to Child.	Remarks.
5 died.	10 still-born.	(1) In one case eclampsia occurred during the 8½ month of gestation without interrupting the course of gestation. (2) A multipara, aged 27, whose urine was loaded with albumen, complained, on admission, of loss of vision; soon after she developed convulsions followed by delivery. Vision began to improve 2 days after labour, but albuminuria appeared to be persistent. No ophthalmoscopic examination was made. (3) A primipara, aged 16, was admitted in first stage of labour; urine was free from albumen. Soon after parturition eclampsia developed. After 11 convulsions urine was still free from albumen, and after 11 more a trace of albumen was found in the urine. This woman died of tetanus 8 days after confinement. (4) There were 8 twin pregnancies with albuminuria; this condition being present in 7 multiparæ and 1 primipara. Eclampsia developed in three of the former. (5) Two deaths in post-partum eclampsia; two deaths in infra-partum; into one in ante-partum.
10 died.	9 still-born.	(1) A multipara, aged 28, complained of loss of vision 2 days after parturition; the urine was loaded with albumen and eclampsia occurred post-partum; loss of vision was of short duration; 8 days after labour the urine showed only a trace of albumen. No ophthalmoscopic examination. (2) In a primipara, aged 32, with a moderate amount of albumen eclampsia developed in the 7½ month of pregnancy without disturbing the course of gestation. When she returned for labour her urine was loaded with albumen, but eclampsia did not occur. (3) Three cases (2 primiparæ and 1 multipara) showed no albumen in the urine on admission, but after the appearance of convulsions the urine became albuminous. (4) Four prematurely born infants died within a few hours after birth. (5) There were 7 twin pregnancies associated with albuminuria, six multiparæ and one primipara. Eclampsia occurred in two of the former. (6) In two primiparæ eclampsia occurred a fortnight after parturition. (7) Death occurred in 6 ante-partum, 3 intra-partum, and one post-partum cases.
5 died.	8 still-born.	(1) A young primipara, aged 17, was admitted in 7½ month of pregnancy with severe albuminuria; developed eclampsia, from which she recovered; albumen completely disappeared from the urine, and she went on to term and was delivered of twins. (2) A multipara, aged 37 years, after several convulsions, was delivered of a still-born child; urine, which was loaded with albumen, cleared up in 4 days; a week later a trace of albumen was observed, and this steadily increased until it was marked. Twenty-three days after confinement patient became violently insane and had to be sent to a lunatic asylum. (3) There were 6 twin pregnancies associated with albuminuria, five multiparæ and one primipara; in ony one instance (see above) was eclampsia present.
28= 22·9%	44= 34%	

Some Clinical Aspects of the Double Uterus.[1]

By Montagu Handfield-Jones, M.D., F.R.C.P.

Every man here is well acquainted with the development of the genital tract, and knows that the uterus and upper vagina are formed by the fusion of two tubes, and that in the normal woman the central septum is removed, so that only one uterus, one cervix, and one vagina is found. In exery text-book of gynæcology one finds excellent descriptions of deviations from this perfect plan, and of the resulting abnormalities. Thus the uterus may be represented by a mere fibrous cord, or may be infantile in size and form, or again the uterus may be bifid, one half of the body corresponding to a perfectly normal uterine body, and the other half being rudimentary.

To-night, however, I do not want to deal with any of these pathological curiosities interesting though their study may be; I want you to recognise that in all my cases the uterine body was double, each half forming a perfect uterus, and each half having a perfect tube and ovary attached to it. The cervix may be single or double, the vagina may be single or duplicate; this will not materially matter in our study of these cases. I will ask you to note one fact here, viz., that these cases of doubling of the genital tract are much more common than most of us fancy, and that many a woman passes through her child-bearing period without her doctor having any idea of the abnormality. You may find this statement hard to believe, but I shall hope to convince you before long that this statement is correct. The first example I ever came across was in the case of a young married woman who was brought to me by her family physician. He informed me that the young woman had told him that she was not made like other women, but that on digital examination he had failed to find anything wrong.

When I made a vaginal examination with the patient in the ordinary left obstetric position, I also failed to detect any abnormality, but on separation of the labia one saw at once that there was a definite septum in the median line, and that two perfectly developed vaginal canals were present. Bimanual examination showed that there was a separate cervix and uterus communicating with each vagina. The patient told us afterwards that she had ascertained for herself that there were two separate canals.

I have several times examined patients with double uterus who have borne children, and yet their own practitioner has not noted any abnormality at the time of birth.

One may fairly judge from these experiences that it is compara-

1. A paper read before the Brighton Medical Society, March 2, 1916.

tively easy to overlook the presence of a double canal, and that the malformation is more common than is usually believed.

Perhaps one reason also why diagnosis is sometimes obscure lies in the fact that the two uteri often are not placed in the same plane, but that one uterine body is comparatively anterior, while the other lies in the posterior-lateral or posterior plane. Under such circumstances, even with a bimanual examination, the posterior portion can easily escape observation.

There are one or two cases on record where not only the uterus and the vagina but also the vulva has been duplicated. In the *Journal of Obstetrics and Gynæcology*, there is a case recorded in January 1913, by Dr. Gemmell and Professor Paterson of Liverpool, which illustrates this rare condition very lucidly. You will see by the plate which I pass round that a complete double set of genital organs is present, and the fact that the woman bore a child first from one side and then from the other shows how perfect was the development.

This malformation must be one of the rarest, as the writers of the paper which I have just quoted could only find one other authentic instance of double vulva.

Having somewhat cleared the way by these preliminary remarks, I now propose to narrate to you my group of cases showing the clinical bearing in each instance, and I think you will agree with me that they form a series which is of real clinical interest.

Case 1. The late Dr. Cundell, of Kew, asked me to see a case in consultation with him, in the following circumstances:—

The woman, a multipara, had been confined ten days previously, with her third child. There was nothing noteworthy, either in the pregnancy, or in the child, but the lochial discharge had been profuse from the first, and for the last three days had been offensive. The temperature had risen above 103 Fahrenheit, and the patient presented all the features of septic intoxication. The uterine cavity had been carefully washed out with iodised water, with a temporary improvement of the symptoms, but the patient was drifting into a dangerous condition.

Abdominal examination showed that the uterus was unduly big, and that its upper part was irregular in outline. With the administration of an anæsthetic it was possible to make a more complete examination, and then one found that two fingers introduced through the cervix entered one cavity on the left side, which gave one the idea of an ordinary uterus which had been recently emptied at full term; but on the right side the fingers passed into a smaller cavity in which was a mass about the size of an apple. With some trouble this mass was shelled out and removed, when it was found to consist of the membranes of an early pregnancy mixed

up with decolourised blood clot. The mass was offensive, and was undergoing decomposition.

After the removal of this mole a long glass tube was passed into the smaller cavity, and a copious douche of perchloride of mercury (1 in 1000) was administered. From this time involution went on satisfactorily, and all the unfavourable symptoms rapidly disappeared.

It was quite evident that the case was one of double uterus with a single cervix, and that the decomposing mass of membranes belonged to a pregnancy, in which the vitality of the ovum had been lost at an early stage.

Of course it was impossible to say whether both pregnancies had started at the same time, or whether it was an instance of a conception occurring in a double uterus at separate intervals. The case was certainly not one of a womb with a rudimentary horn, for the uterine cavity, in which the mole was lying, was well developed, and seemed quite capable of allowing full-term development. Probably septic particles had made their way into the smaller cavity at, or soon after, delivery, and septic changes had rapidly followed.

I think that without the help of the anæsthetic it would have been very difficult for even an expert to have felt sure that he was dealing with a condition of double uterus. In her previous pregnancies the labour had been perfectly normal, and the doctor in charge had no idea of the unusual condition of the uterine cavity.

Case II. Mrs. P., a multiparous woman, had missed two monthly periods, and thought herself pregnant. Recently, however, a rather copious red loss had commenced, and the patient's doctor had put her to bed, hoping to avert what seemed to be a threatening abortion. As the bleeding continued for several days, and the womb was enlarged to the size of a two months' pregnancy, or rather more, the patient's doctor asked me to see the case in consultation. The patient was a nervous woman, and the abdomen was somewhat fat, so that examination was not easy, but one could detect a patulous condition of the os and enlargement of the uterine body.

As the hæmorrhage continued it was decided to explore the uterus. When the patient was fully under the anæsthetic a different state of affairs revealed itself. It was now found that there were two separate cervices, and that behind what we had thought to be the sole uterine body was another mass, the size of a cricket ball, which was evidently a second uterine body, containing probably a growing ovum. A sound passed into the anterior uterus showed that it measured nearly four inches in length, and that the cavity was distinctly enlarged. On passing the curette into this cavity some fungoid mucous membrane was brought away,

but otherwise the cavity was empty. The patient convalesced satisfactorily from the small operation, went to full term and bore a healthy child.

I cannot help thinking that this was a case of menstruation from one uterine cavity while pregnancy was going on in the other, and it raises the interesting question of the possibility of superfœtation under such conditions. The case has a distinct interest in connection with the clinical history already recorded of Case I.

Case III is one of great interest. Mrs. B., aged 36, multipara, had suffered with hæmorrhage from her kidneys for some months, and underwent an operation at a London hospital for the relief of this condition.

The state of her urinary tract was considered so unsatisfactory that a decided opinion was expressed advising the avoidance of further pregnancies. In spite of this advice the patient did become pregnant again, and in the month of June 1911, was found to be two months advanced in pregnancy.

In the end of June 1911, her doctor dilated the cervix under anæsthesia, and with the ovum forceps removed two fœtal sacs (twin pregnancy) which were advanced to about the tenth week of utero-gestation.

In October 1911, the patient noted that her abdomen was steadily increasing in size, and she felt sure that she had felt quickening about four weeks previously.

On October 20, 1911, I met her doctor in consultation, and he pointed out to me how completely the uterus had been emptied, and that a pregnancy was almost impossible.

Examination of the abdomen showed that the womb was enlarged slightly above the level of the umbilicus, and fœtal movements could be felt. Vaginal examination confirmed this opinion. Bimanual examination showed that to the left of the uterus there was another body which felt like the enlargement of the uterine fundus, and there could be little doubt that the patient was pregnant in one horn of a double uterus. There was only one cervix to be felt by vaginal investigation.

The further history of the case was that the patient went to full term and was delivered of a normal fœtus. The interest of the case lies in the fact that the patient must have had a triple conception.

On June 22nd one horn of the uterus was emptied, but this did not prevent the continuance of the single pregnancy in the other horn. There was undoubtedly rather a comic element in the case, but I need not say that the patient herself failed to appreciate it.

Case IV. Mrs. X. had been married more than four years. Her general health was perfect, menstruation was normal, the loss coming every month and lasting five days.

In March 1907, she missed a poorly time, and saw nothing till

the next monthly time was due, then there was a slight red loss, and she had a severe attack of abdominal pain, which necessitated rest in bed and warm applications to the abdomen.

Her medical man wrote to me saying that there was a distinct enlargement on the left side of the womb, and that he was sure the patient had conceived in her left Fallopian tube. As the patient was now free from pain and able to travel he sent her up to me for operation. On examination I found the uterus enlarged to about the size of two months' pregnancy and pushed over to the right side of the pelvis. To the left of the uterus was a swelling rather larger than the normal non-gravid uterus. It struck me that the case was one of double uterus with a single cervix. The doctor and the patient were both so convinced that I was wrong, and that some complication had taken place internally, that I offered to make an exploratory abdominal section to settle the point. This they willingly agreed to, and I opened the abdomen at St. Mary's Hospital and was able to demonstrate the enlargement of the right uterine body, which corresponded in all respects with a $2\frac{1}{2}$ months' pregnancy. It was equally easy to demonstrate that the swelling on the left side was the other uterine body, which was slightly swollen, but evidently did not contain a growing ovum.

The rest of the case was uneventful; the patient went to full term, had a normal labour, and a healthy living child.

Case v. Mrs. H., a primipara, went to nearly full term, and then labour began. Beyond the fact that the first stage was unduly long there was nothing abnormal in the course of the confinement. After the child (which was of small size) was born the doctor noticed that the womb was still large, and he could feel the outlines of another fœtus. On examining the uterine cavity he found what seemed a thick fleshy septum, or might have been a very thick bag of membranes. As he failed to rupture this with his finger, he introduced a long pair of scissors into the uterine cavity and endeavoured to open the way into the fœtal sac. He was obliged, however, to desist, as very severe hæmorrhage came on. This was arrested, but returned to some degree next day. The temperature rose and the patient exhibited symptoms of blood poisoning and died about the fifth day.

Examination after death showed another fœtus lying in the second uterine cavity, and a ragged wound in the septum between the two bodies. Clearly the operator had cut with his scissors into the muscular tissue of the septum and wounded some fairly large branches of the uterine artery.

Case vi. The following case illustrates satisfactorily the tendency of this mal-development to produce malposition in the lie of the fœtus. I attended Mrs. P. in her third and fourth confinements. In her first and second labours she was attended

by two different medical men. In both instances the child presented by the breech and was unfortunately born dead on both occasions. In the third confinement the presentation was again a breech one, but there was a curious thickening to be felt at the anterior aspect of the external os, and on closer examination it was found that there were two separate uteri and two separate cervices. Beyond some delay in the completion of the first stage the labour ran a fairly normal course, but when the breech was descending it was plain that the second uterus was acting rather as an obstacle in the passage of the child, and some manual assistance was necessary to secure quick and safe delivery.

In the fourth confinement the same thing happened, only in this instance the pregnancy took place in the more anterior uterus, and the posterior uterine body was drawn up above the level of the pelvic brim, so that it was not only out of harm's way but also would have been easily overlooked had one not been acquainted with the malformation.

There was no difficulty in the third stage of the labour, and the puerperium ran a perfectly normal course. Perhaps the womb was a little longer in returning to its normal state, but both uteri underwent satisfactory involution, and the patient's convalescence was in no way interfered with.

Case vii. In quoting the previous cases I have already called attention to the fact that the two uterine bodies of a double uterus tend to lie anteriorly and posteriorly, and are not in the same lateral plane. Also I have noted that as pregnancy progresses in one cavity the other body tends to be drawn upwards above the brim of the pelvis, and to arrange itself at a high level, either above the pubis or above the sacral promontory.

Now in the case which I am about to bring before you something interfered with the usual mechanism, and when labour came on the cervix of the anterior body in which the living child was situated was drawn upwards to a high level, while the empty uterus was pushed down into the hollow of the sacrum and formed a tumour which effectively blocked the descent of the fœtal head.

In these cases I have noticed that the empty uterus grows in sympathy with its fellow, and that it attains a size equal to a gravid uterus at the end of the third month.

In the case now under consideration the diagnosis was not made absolutely before operation. The mass which lay in the pelvic cavity, blocking the passage of the head, was thought to be a fibroid, or a solid ovarian tumour. It was only when the abdomen was opened, Cæsarean section performed, and the empty uterus delivered through the abdominal section, that the true nature of the case was discerned.

Probably in most cases the diagnosis would be made under

similar conditions, and the real nature of the obstacle scarcely recognised until the abdomen had been opened.

Case viii. Interesting "*re*" diagnosis between fibroid and pregnancy in double uterus.

Mrs. W., æt. 31, has had three pregnancies. The first and the third were perfectly normal, but in the second pregnancy certain troubles arose.

I saw the patient when she was four and a half months' pregnant, and for the last three months she had had slight uterine hæmorrhage on and off continually. The patient thought herself to be about four months or rather more advanced in pregnancy.

Abdominal examination showed that the womb reached half way up to the umbilicus; its tissue was rather flabby and relaxed, and there was an indefinite swelling on the left side of the uterine body. The outline of the upper border of the uterus showed a deep indentation, and the tissue was more dense on the left side than the right.

Vaginal examination showed that the cervix was deeply split bilaterally and the endometrium felt thickened and boggy. The recurrent blood losses suggested either the presence of placenta prævia or else an abnormally spongy condition of the endometrium.

Regarding the abdominal examination it was a question whether the denser tissue on the left of the uterus was a small fibroid or the unimpregnated half of a double uterus. It seemed fairly certain that the patient was four months advanced in pregnancy, and the doctor who had asked me to see the case with him agreed with me that the hard swelling on the side of the uterus was almost certainly an interstitial fibroid, and the view was taken that the presence of the fibroid had increased the vascularity of the endometrium, and was therefore the cause of the irregular blood loss.

The sequel of the case showed that our view was wrong, for the patient carried the child up to seven and a half months, and then labour came on and a dead child was born. In the third stage of the labour the placenta had to be removed by hand, and then it was easy to be certain that the case was one of double uterus with a pregnancy in the right body.

Probably some of my hearers may have had similar cases and may have felt equally uncertain whether the diagnosis should be that of fibroid of the womb or of double uterus.

Case ix. Mrs. C., æt. 35, was admitted to Guy's Hospital on March 26, 1914, for Cæsarean section, which was necessitated by deformity of the pelvis. This operation had been performed on two previous occasions.

Her first pregnancy was terminated in July 1907 by craniotomy. Her second pregnancy was terminated in November 1908 by

Cæsarean section, mother and child doing well. In September 1911, full-term pregnancy was again terminated by Cæsarean section, and the operator endeavoured to sterilise the woman by removal of the Fallopian tubes. The right tube was found and tied off, but the left tube could not be discovered. The patient was very distressed at having become pregnant again, thinking that the last operation had made it certain not any further pregnancy could occur. On March 27, the third abdominal operation was performed by Mr. Bellingham Smith.

Operation. The abdomen was opened by a median incision below the navel. The uterus was explored and intestines packed off. It was at once evident that the anterior wall of the uterus was extremely thin in the site of a previous Cæsarean section. Uterine sinuses could be seen bulging through the wall only covered by peritoneum. The wall was incised and the placenta—which was in front—having been rapidly displaced, the child was delivered. Mr. Bellingham Smith decided to remove the uterus because sterilisation had been unsuccessfully attempted at the second Cæsarean section, and the weak condition of the uterine wall might result in rupture in the event of another pregnancy. He then remarked that the left tube and broad ligament appeared to be naturally attached to the uterus, while the right tube was absent. He suggested the possibility of pregnancy having occurred in a bicornuate uterus. On investigating the condition present it was found that a small hard body, the size of a goose's egg, lay to the right side of the recently gravid uterus, effectively hidden from view by a fold of peritoneum which extended from the posterior surface of the bladder to the rectum. This was found to be the right half of a double uterus.

The two horns were removed together by subtotal hysterectomy.

Both mother and child made excellent progress and went out three weeks later.

It was found on examination that the woman had a single vagina and one external os.

Case x. M.E., æt. 16, single, was admitted to Guy's Hospital under the care of Mr. Bellingham Smith on September 24, 1906, with the following history:—

Her monthly periods began when she was 14 years old, and were in all respects normal. Her last period came three weeks ago. Pain was first experienced in June, when it lasted a fortnight, but there was no pain for the following three weeks. At the last two monthly periods pain has come on, on the first day, and has lasted three days.

Abdominal examination. Patient is very tender over the abdomen, and a lump is felt in the right side, extending half an inch above the level of the umbilicus. The lump seems movable

from side to side, but fixed below. It is of firm consistency, but is difficult to examine, as the patient's abdomen is so tender.

Operation by Mr. Bellingham Smith. Patient was anæsthetised. Incision in middle line below umbilicus. Tumour exposed rising out of pelvis with bowel adherent to it. The great omentum attached to the tumour was very dark in colour as though stained with blood. The mass was found to be a bicornuate uterus. The left side was the bigger, and the left tube was greatly dilated. On puncturing the tube, treacle-like fluid—which was found to be sterile—poured out. Adhesions between the tube and bowel were separated and a large clot removed from the peritoneal cavity. This clot had to be picked out in pieces as it was very adherent. The left tube and ovary were removed. Abdomen closed.

Patient was then placed in the lithotomy position. A large swelling was found on the left side of the vagina. This was incised and altered blood was evacuated. The cavity was emptied by irrigation through a douche tube. The patient was then found to possess two vaginas—the left being imperforate—and a uterus composed of two horns. The patient made a good recovery.

On August 2, 1913, the patient was readmitted, complaining of pain at the monthly times. Menstruation was regular and normal in amount, but always associated with pain in the lower part of the abdomen. Abdominal examination revealed nothing abnormal. Vaginal examination showed that the vagina was septate, and at the upper end of each vagina there was an os externum, one lying in front of the other.

Operation. Patient was anæsthetised and placed in the lithotomy position. Each cervical canal was separately dilated. It was found that a uterine sound passed three inches into the anterior os externum and $2\frac{1}{4}$ inches into the posterior. The dividing septum between the two vaginæ was then excised, a few stitches were inserted over-sewing the raw incised surfaces, and the vagina was lightly packed. Uninterrupted convalescence.

N.B.—For the notes of these last two cases I am indebted to the courtesy of Mr. Bellingham Smith.

In bringing the subject to your notice to-night I have endeavoured to lay before you not the largest possible number of cases I could collect, but a series, each one of which would illustrate some definite clinical feature. Many interesting points will arise for discussion, *e.g.*, the relative frequency of this abnormal development—the possibility of super-fœtation—the errors of diagnosis—and the occurrence of menstruation during pregnancy. I shall feel more than satisfied if I have stimulated your interest in this abnormality, and have gained from your experience some useful facts to add to my own small store.

A Case of Fatal Rupture of the Bladder During the Puerperium.

By Frances M. Huxley, B.Sc., M.D. (Vict.),
Registrar, Samaritan Free Hospital, N.W.

Mrs. W., æt. 26, a primipara, was confined on December 21st, 1914, vertex presentation; right occipito-posterior position. The doctor was called in on account of delay in the second stage of labour and applied forceps, after leaving the nurse to catheterise the patient. [It transpired later that the catheter was not passed, but that the patient "made water herself."] Delivery by forceps was of medium difficulty. A perineal tear was stitched.

The puerperium went on uneventfully until December 29th, the ninth day. Then, while still in bed and nursing her baby on the left arm, the patient made a sudden stretching movement of the right arm to pick up something from the floor. She was at once attacked with violent abdominal pain, collapse and vomiting.

Dr. Cuthbert Lockyer saw Mrs. W. in consultation the following day and sent her immediately to the Samaritan Hospital.

On admission to hospital at 11 p.m., December 30th, the patient looked extremely ill, the face was pale, the tongue dry and bright red, the extremities cold and clammy, temperature 102.2°, pulse running. The abdomen was very markedly distended, symmetrical, and moved on respiration. It was neither very rigid nor very tender. There was dulness over the symphysis pubis and in the flanks, and the presence of free fluid was determined.

The patient stated that she had passed no urine since the onset of the acute illness (*i.e.*, for about 30 hours), so was catheterised, 40 oz. of acid, somewhat offensive, urine being withdrawn.

Catheterisation was repeated at 8 a.m. the following morning, and 35 oz. of urine withdrawn!

In spite of stimulant treatment the patient's condition became gradually worse, and she died at 2 p.m. on December 31st.

A post mortem examination was made the following day. On opening the abdomen an odour of urine was noticed and 2-3 pints of turbid urine and peritoneal exudate escaped. In the hypogastric region the bladder was adherent to the anterior abdominal wall, and the posterior part of its fundus adhered lightly to the anterior surface of the uterus. The whole bladder wall was very thin, the organ having obviously been in a state of considerable distension. At the summit of the fundus of the bladder was a horizontal slit $2\frac{1}{2}$ inches in length, through which the urine had escaped. The edges of the slit were jagged and sharp and showed no signs of sloughing nor of bruising. Signs of general peritonitis were present.

The questions arising from this case are firstly *when* and secondly *why* rupture of the bladder occurred? I think there can be little doubt but that rupture occurred when the patient made the sudden stretching movement already described on the ninth day of the puerperium, because the onset of symptoms was acute and her state was said to have been satisfactory until then.

The question *why* is more difficult to answer. Examination of the bladder shows no reason why it should have given way at the particular point it did—there is no evidence of any necrotic process, simply a slight submucous hæmorrhage due to the tear.

I suggest the following explanation:—Forceps were applied to the fœtal head when the bladder was distended, producing increased pressure on its walls and bruising of its base and of the urethra. This produced atony of the bladder, so that the state of distension was never overcome, the patient only partially emptying the bladder. The sudden movement took place at a time of extra distension, and the strong contraction of the abdominal muscles was sufficient to produce spontaneous rupture.

In searching the literature for similar cases, only one was found that had points of resemblance. This is a case described by Gentles[1] in 1883, and is of interest in that again rupture of an uninjured bladder took place as a result of muscular action:—Mrs. T., æt. 36, a multipara and an alcoholic subject, was known to suffer from occasional retention of urine. She had an abortion at 3 months and from this time developed acute abdominal symptoms resulting in death 30 hours afterwards. Rupture of the bladder was found to have been the cause of death and was considered to have occurred as the result of expulsive labour pains on a distended bladder.

My thanks are due to Dr. Cuthbert Lockyer for permission to report Mrs. W.'s case, and for his kindly help in the preparation of the report.

1. Gentiles, T. L. "A Case of Rupture of the Female Bladder Associated with Abortion." *Brit. Med Journ.*, Lond., 1883, i, 3.

Three Cases of Labour Obstructed by Ovarian Cyst.

By Walter Salisbury, M.B., B.S. (Lond.).

Case I. D.S., aged 28, was admitted to Queen Charlotte's Hospital on November 24, 1914, at 2-30 p.m., with the history that she had been in labour six days, in acute pain, the membranes having ruptured two days previously. She was full-term in her second pregnancy. On admission the patient showed signs of coming exhaustion, with pulse 128, and powerful uterine contractions were present. Thirty ounces of urine were withdrawn by catheter. The child was dead, and the head fixed in the pelvic brim in the right occipito-posterior position. The os uteri was fully dilated, and a large tense cyst filled up the pouch of Douglas; it lay completely below the presenting part and no attempt was made to displace it. Morphia, hyoscine and atropine were given, and the patient's general condition improved.

At 6 p.m., under an anæsthetic, Dr. T. G. Stevens opened the abdomen and lifted the uterus outside. A dermoid cyst of the left ovary, the size of an ostrich's egg, was withdrawn from the pelvis with some difficulty, rupturing in the process. The cyst was removed, the uterus replaced in the abdomen, and the fœtal head pushed into the pelvic brim. The patient was then placed in the lithotomy position, the occiput manually rotated to the front, and a dead child, weighing $8\frac{1}{4}$ lbs., was delivered with axis-traction forceps without difficulty. The abdominal wound was then closed and the patient made an uninterrupted recovery.

I consider that the method here adopted was simpler and safer than Cæsarean section. The cervix and the contents of the amniotic sac were suspected of infection, and the risk of conveying this to the peritoneum was abolished, and of conveying it to the placental site was lessened, by delivering *per vias naturales* and then expressing the placenta.

Case II. J.O.H., aged 26, mother of three children, was confined in her own home on Queen Charlotte's district on January 2, 1915. The midwife in attendance felt a mass behind the vagina and the fœtal head high up in front in the first vertex position. Strong pains were present. Medical aid was at once sought, but when the District Medical Officer arrived at about 4 a.m. a living child, weighing $7\frac{1}{4}$ lbs., had been born, and the pelvic mass had disappeared. The patient vomited once, had pulse 116, and a little abdominal pain. The duration of the first stage of labour was reported as 22 hours, and the second stage $1\frac{1}{2}$ hours. During the day the patient had felt comfortable, but was sent into Queen Charlotte's Hospital at 9 a.m. On admission the patient felt more comfortable. She had, however, a pulse of 108, and

definite tenderness on deep pressure over the lower abdomen; there was some distension, but no rigidity and no dulness. She had an anxious expression and lay very quiet.

At 9-45 p.m. the abdomen was opened by Dr. J. B. Banister. A quantity of serum, blood and mucoid material was present in the peritoneal cavity. A semi-solid multilocular cyst-adenoma of the left ovary, weighing 2½ lbs., was found to have ruptured, and one loculus was still lying in the pelvis. The cyst was removed and the free fluid mopped up, but a further quantity was drained away through a tube during the following 24 hours. The patient made an uninterrupted recovery.

If this case had been seen while in labour, it could have been readily dealt with by removing the tumour and then delivering with forceps as in Case I.

Rupture of the cyst during labour is not very rare; Munro Kerr gives the frequency as 13 per cent. In the above case the cyst appears to have ruptured easily, and there were very few symptoms afterwards to suggest a catastrophe, so that even with a pulse of 116 falling to 108 the *nature* of the condition might have been overlooked had not a suggestive history been furnished by the midwife. Munro Kerr records a case where a cyst was ruptured during delivery by forceps and the condition *was* overlooked for five days, after which an operation failed to save the patient.

Case III. J.M., aged 30, was sent up to Queen Charlotte's Hospital on November 20, 1914, at 6 p.m., as labour was commencing and her doctor had felt two polypi in the vagina. The patient had two children and was now at full-time in her third pregnancy. On admission she was having occasional pains, and the child was alive and presenting as a first vertex. Abdominally, a small cyst of the left ovary was found to move freely over the left surface of the uterus. A vaginal examination revealed two polypoid tags of cervix, the size of cherries, adjacent to old scars, and dilatation had not commenced. In the pouch of Douglas there was a densely hard angular mass, the size of a hen's egg, which was continuous on the left side of the pelvis with a soft cyst. The mass was immovable and was diagnosed as a dermoid of the right ovary.

Dr. R. D. Maxwell saw the patient the next day, and on the following morning performed laparotomy. Although labour appeared to have passed off, a quantity of liquor amnii escaped three hours before the operation. The pelvic mass was not very accessible, so Cæsarean section was performed and a living child, weighing 8¼lbs., was delivered. The pelvic mass proved to be a dermoid of the right ovary, the size of a cocoanut, and it was afterwards found to contain a mass of bone and three teeth. A dermoid of the left ovary was also present, though above the pelvic

brim. Both cysts were completely removed, and the patient made an uninterrupted recovery.

Cæsarean section was probably the simplest and safest method of treating this case, as the cervix was undilated, and there was no reason to suspect any infection of the uterus.

Of the many other methods of treating this and similar cases two may be briefly mentioned.

One is to perform ovariotomy, close the abdomen and then allow labour to proceed. This, however, throws a severe strain on the abdominal wound, and is very distressing to the patient.

The other method is to leave the patient in labour, under careful observation, until the os uteri is fully dilated, then remove the cyst by laparotomy and immediately deliver by forceps or version. This may be the safest treatment under certain conditions, *e.g.*, with an infected uterus and the os already partly dilated. In certain cases seen late in pregnancy it has been suggested to induce labour and then adopt this method. It has, however, two disadvantages: firstly, that the obstruction will frequently lead to premature rupture of the membranes and unsatisfactory dilatation of the os, and secondly, that the cyst may rupture before the laparotomy has been done.

In conclusion, I think that a case seen towards the end of pregnancy or early in labour is most safely dealt with by Cæsarean section; whereas if it is seen late in labour, especially if the uterus is infected, the safer course is to turn the uterus out of the abdomen, remove the cyst, and deliver the child *per vias naturales* before closing the abdomen.

I wish, finally, to express my thanks to Dr. Stevens, Dr. Banister and Dr. Maxwell for their kind permission to report these cases.

REPORTS OF SOCIETIES.

ROYAL SOCIETY OF MEDICINE.

Section of Obstetrics and Gynæcology

Annual Meeting held Thursday, May 4th, 1916, Dr. M. Handfield-Jones in the Chair.

The officers and Council for 1916-1917 were elected.

L. Carnac Rivett, F.R.C.S., was elected a member of the Section.

The President made a few sympathetic remarks on the loss that the Section had sustained by the death of Dr. R. Drummond Maxwell.

Dr. Herbert Spencer read a short communication on a fourth case of

PRIMARY CANCER OF THE FALLOPIAN TUBE

(his three earlier cases had been published in the Journal, 1910).

The tumour was removed, together with the uterus (which contained an adeno-myoma and a small myoma) and a simple ovarian cyst with which the ostium of the tube communcated (tubo-ovarian cyst). The cancer occurred in the ampulla of the tube, to which it was confined. The growth was a carcinoma resembling in many places a sarcoma. Extensive keratinisation was present. Sections were shown demonstrating the origin of the cancer from the epithelium of the tubal plicæ. The growth recurred in the pelvic colon, a piece of which was excised and an end-to-end anastomosis made. The growth again recurred and was not influenced by *x*-ray treatment.

The sequel of events in developing cancer in this case appeared to be (1) salpingitis with simple invasion of the muscular wall by tubal glands; (2) papilloma; (3) malignant invasion of the wall by glands, the epithelium of the glands and of the papilloma becoming proliferated to form cancer.

Dr. H. Russell Andrews showed a specimen of "bilateral carcinoma of Fallopian tube." The patient was aged 55, married twice, childless. The menopause occurred at 49. In December, 1914, she began to have a discharge of blood, and later the discharge "turned to pure water." She was admitted to the London Hospital in March 1916. The profuse watery discharge was thought to suggest the presence of carcinoma of a Fallopian tube. The abdomen was opened, and both tubes were found to be greatly dilated, the left forming a mass 6 inches by $2\frac{1}{2}$, the right 4 inches by 2. The uterus was atrophic, and showed nothing abnormal. The cavity of the right tube was almost filled by papillary growth; the left contained a good deal of similar growth, but was not so tightly filled.

Dr. Andrews considered that the growth was a papillary carcinoma, but thought that there might be some discussion as to whether it should not be called a papilloma, and suggested that the specimen should be referred to the Pathological Committee.

Lady Barrett showed a specimen of "primary squamous-celled carcinoma" arising in a tuberculous Fallopian tube. The patient, æt. 46, married nine years, sterile, had complained of pain in the right iliac fossa for ten years. There was a hard well-defined tumour in the right side of the lower abdomen. On vaginal examination, Douglas' pouch and both lateral fornices were filled up by the swelling. The uterus and both tubes and ovaries were removed. The right tube showed very extensive tuberculous disease. The left tube was lined by tuberculous granulation tissue, and towards the outer end there was squamous-celled carcinoma with

keratinisation and a few cell nests. There was no carcinoma in the uterus, and numerous sections of the ovaries failed to show the presence of "dermoid" tissue.

Dr. CUTHBERT LOCKYER showed a specimen "Pre-cancerous changes seen in the displaced epithelium of nodular salpingitis."

Some remarks sent by Mr. Alban Doran were read by the SENIOR SECRETARY :—

Mr. Alban Doran, who has read the records of later cases of cancer of the Fallopian tube with much interest, has come to the conclusion that primary cancer is the rule—a statement he would not have dared to make in 1888, when he described the first case under his personal observation. The malignancy of tubal cancer is of a very high degree, even after the most modern and radical operations, yet after-histories rarely include any suggestion of a primary seat other than the tube. How comes it, if according to some authorities tubal cancer is always secondary, that the primary disease happens to be always latent when a tube is amputated for carcinoma? Do we often meet with such a pathological phenomenon in the case of the breast or tongue? The Wells-Bickersteth case of papilloma teaches us that a new growth of a type which later experience has shown to be very liable to malignant degeneration may be absolutely confined to the Fallopian tube; when such degeneration occurs the tube must of necessity be the primary seat of carcinoma.

Dr. HEYWOOD SMITH discussed Dr. Spencer's communication, saying that he should like to ask Dr. Spencer, with regard to the first case he narrated, whether, if the oviducts had been opened at once and had been found malignant, and if, therefore, the other one had been removed, in his opinion it would have given the woman a better chance, or was it another case where a woman had neglected to realise the importance of abdominal symptoms.

Dr. F. J. MCCANN discussed Dr. Andrews' specimen.

Drs. SPENCER and ANDREWS replied.

Dr. HENRY BRIGGS read a paper on

UNILATERAL SOLID PRIMARY ADENOMA OF THE OVARY.

The recognition of a benign solid glandular growth—an adenoma—as a rare primary tumour of the ovary was the main purpose of this short communication.

Allusion was made to the fact that the numerical preponderance of fibroma over sarcoma had been long and well established, whilst amongst solid primary glandular growths any corresponding statement concerning adenoma and carcinoma was still wanting; for this omission rarity and uncertainty were responsible.

In support of the paper, three cases of unilateral large solid adenoma of the ovary were described.

CASE I. S. S., æt. 54, 8 by 4 by 4½ in., adhesions, ascites, 1 gall.

CASE II. A. L., æt. 38, 7 by 5 by 5½ in., no adhesions, no ascites.

CASE III. Mrs. McG., æt. 62, 3½ by 3½ by 3½ in., no adhesions, no ascites.

An almost borderland case of unilateral solid cancer of the ovary was included.

CASE IV. A. G., æt. 36, 10 by 7 by 6½ in., universal adhesions, no ascites. Estimated freedom from recurrence, 10 to 12½ years—death from cancer 15 years after ovariotomy.

The inclusion of this case (1) supplements the report on February 4th, 1915, by Dr. Herbert Spencer, before the Obstetrical and Gynæcological

Section, on a ruptured unilateral solid cancer, 6 by 3½ inches, of the ovary, ovariotomy, subsequent pregnancies and good health after seven years; and (2) associates with it an even longer after-history of freedom from recurrence.

In this case an apparent surgical triumph over a large, adherent, cancerous tumour is singular enough to suggest, if not to establish, the tumour's innocence and an entirely new and independent cancerous growth during the last four of the fifteen years of the patient's life subsequent to the ovariotomy.

To his colleagues in pathology, Professors Ernest Glynn and Beattie, the reader of the paper expressed his indebtedness for a scrutiny of the histological details; in two, Cases i and ii, the alveoli were lined by short columnar or cubical cells in a single layer; in one, Case iii, an intermediate arrangement, *i.e.*, the alveoli were not packed, they were lined, not with one but several layers of short cylindrical cells, curtailing and usually not obliterating the lumen of each alveous, and in one of the growths, Case iv, the alveoli were fully packed with similar epithelial cells.

Dr. HERBERT SPENCER discussed the paper. He thought there was need for further careful study of solid ovarian growths with glandular contents. His own case, alluded to by Dr. Briggs, was certainly not an adenoma; it was a soft growth, and microscopically was a medullary carcinoma, exactly resembling one of Dr. Briggs' cases which recurred. Although over 12 years elapsed before recurrence occurred in Dr. Brigg's case, that did not prove that it was not a true recurrence, which had been known to occur after more than 20 years in cancer of the uterus. In the light of Dr. Briggs' case, his own patient, who had since had children and remained well for some years, would be watched with some anxiety. The most interesting case of solid "adenoma" were those hard tumours containing masses of epithelial cells diffused throughout the fibrous stroma, of which he had removed one example, and several specimens had been exhibited before the Section. These hard, slow-growing tumours, he had no doubt, were simple fibro-adenomata, although the opinion that they were carcinomatous had been given by several members of the Section when Dr. Giles' specimen was exhibited.

In reply, Dr. BRIGGS said that of the clinical histological puzzles none could be more difficult than adenoma *v.* carcinoma.

Mr. J. D. MALCOLM related a second case of "pneumoperitoneum" probably induced by the bacillus aerogenes capsulatus. Both Fallopian tubes, the left ovary and the vermiform appendix were removed from a woman, æt. 38, on account of inflammatory disease. Three days later the abdomen began to distend, and continued to do so until it was blown up like a tense balloon. On re-opening the peritoneal cavity several days after the first operation a large quantity of odourless gas was set free and the distension immediately disappeared. The patient made a good recovery. The case recorded in the Surgical Section (*Pro. Royal Soc. Med.*, vol. iii, Surgical Section, pp. 13-24), in which a similar condition followed removal of the cancerous rectum, was referred to, that patient being about and well six years after this operation. In both cases, arguing by a process of exclusion, it was concluded that a micro-organism, probably the bacillus aerogenes capsulatus, was the cause of the development of gas. The innocuous character of the bacillus under certain circumstances was pointed out. The pneumo-peritoneum in these two cases were not diagnosed until the peritoneal cavity was re-opened with a view to the relief of a supposed intestinal obstruction by draining the intestine after the fashion described

in the 8th vol. of the Society's Proceedings (*Pro. Royal Soc. Med.*, vol. viii, Obstet and Gynæcol. Section, pp. 16-24). It was suggested that possibly some cases of pneumo-peritoneum had been overlooked by refraining from operative treatment for distension of the abdomen by gas.

Drs. F. J. McCann, Cuthbert Lockyer, C. Hubert Roberts and H. Russell Andrews discussd the paper, and Mr. Malcolm replied.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF OBSTETRICS.

Meeting held December 17, 1915, the President in the Chair.

PUS TUBES REMOVED FOR THE CURE OF STERILITY.

Dr. Hastings Tweedy showed a case of above where he had resected both tubes and inserted a piece of No. 1 chromicised catgut in the lumen.

Sir William Smyly said the tubes appeared to be tubercular. If that were so it showed that pelvic tuberculosis is a very localised and chronic condition.

Dr. Solomons thought it would be an interesting experiment, in a case where both tubes were diseased, to place catgut in the lumen of one and merely to resect the other. Three months later the abdomen should be re-opened to find which tube was patent.

Dr. Sheill suggested a further improvement in technique by passing a double thread of fine catgut through the tube by means of a forked probe, splitting the stump of the tube and suturing each flap together with one of the ends of gut to each side of the ovary so as to embrace it. He considered a false passage made in passing the gut as of little importance.

Dr. Gibson asked how Dr. Tweedy knew that the catgut lay in the lumen of the interstitial portion of the tube. His difficulty in these cases was to get the chromicised catgut to pass along through the lumen of the tube without making a false passage, and this was particularly so when it reached the interstitial portion. He had bisected the uterus after passing the catgut, and even then he could not be sure that the catgut was in the lumen.

INFANTILE TETANY.

Dr. Spencer Sheill read a paper on the above subject.

Dr. Ella Webb said that care should be taken to define tetany definitely, as Dr. Sheill's cases appeared to resemble convulsions from causes either of a toxic or irritative nature. The question is whether cases with the following symptoms can be named tetany:—Slight tonic spasm, with occasional spasm such as flexion of the forearm or thigh, the movements in the latter being increased by pressure. It seemed as if tetany, as described in the text-books, took an intermediate place between definite convulsions and these slight spasmodic contractions. Dr. Webb wished to ask Dr. Sheill the effect of the parathyroid bodies on tetany, as she was unable to find the connection between them and the digestive causes of tetany which are universally recognised.

Dr. Purefoy also spoke.

Dr. Sheill, in reply, defined tetany as spasms of face and limbs without loss of consciousness. He considered tetany to be a mere symptom of some ailment, and to be a stage less than true convulsion and a stage worse than simple spasms. In answer to Dr. Purefoy he said tetany in adults was not common, as hysteria accounted for so many supposed cases.

THE ORIGIN AND BOUNDARIES OF THE LOWER UTERINE SEGMENT.

Dr. HASTINGS TWEEDY read a paper on the above subject. He claimed that there was now sufficient data available to clear up the mystery in connection with this anatomical structure. The endo-peritoneal tissue forms the true boundary between the cervix and body and constitutes the tendinous extremities of the uterine fibres. Until this tissue has been put out of action either by rupture or by opening of the os internum there can be no pressure exerted on the cervix. He showed that the dilatation of the internal os as an early phenomenon of pregnancy, and that this dilatation permitted the ovum to pass through and press directly on the cervix. Continuous pressure on the cervix caused a rapid hypertrophy, and this law obtains in the unimnated as well as in the pregnated uterus. The cervix does not stretch, but rather grows, and the growth of the lower uterine segment has its complete counterpart in the growth of the supravaginal portion of the non-pregnated " procidentia uteri."

Sir WILLIAM SMYLY said that most of the ideas in the paper were new to him, and he could not immediately make up his mind as to how far they would conform to the established facts, though, to a large extent, they appeared to do so. As regards the origin of the lower uterine segment the communication left the arguments depending on the histology of that part unaffected.

Dr. ASHE : The opening of the pelvic fascia is more rigid than is usually imagined. The uterus fits into this as a hanging hinge. I consider the elongation of the cervix in cases of prolapse is due to a piping of the uterus, which is driven down, whilst at the same time the cervix elongates.

Dr. KIDD said he would wish Dr. Tweedy to reconcile one or two practical points with his theory. Firstly, in cases of elderly primiparæ, if hypertrophy of the cervical zone took place instead of elastic distension, why was there more tedious dilation in elderly primiparæ than in young primiparæ. Secondly, in cases of " rigid os," where the cervical zone was so thinned out that it was very difficult to say the position of the os, how could he reconcile that with hypertrophy of cervical zone? Thirdly, when premature rupture of membranes occurred labour would be prolonged in first stage because the " hydrostatic dilation " was lost. Did not that circumstance point rather to an elastic distension than a hypertrophy? Dr. Kidd asked these questions solely for information as to how Dr. Tweedy reconciled the conditions with his theory.

Dr. SHEILL considered the theory advanced to be very ingenious, but queried if this growth, due to sustained pressure, could account for hypertrophied cervix in virgins following increased abdominal pressure from tight lacing and constipation.

Dr. GIBSON said the supravaginal portion of the cervix adapted itself to pregnancy just as the body does. The growth of the cervix began, however, long before labour commenced. It could be recognised after artificial dilatation of the cervix during the seventh month.

The PRESIDENT said that the original controversy over Bandl's and Muller's rings was left in an undecided position, and was still undecided. Dr. Tweedy supported Bandl's view, and the explanation which he offered for the formation of the lower uterine segment out of the upper dilated portion of the cervix seemed very plausible and to be what was required to give preponderance to the one theory over the other. He (the President) concurred with Dr. Tweedy in his view of the structures.

Dr. PUREFOY also spoke.

Dr. TWEEDY replied.

Meeting held Friday, February 11, 1916, the PRESIDENT in the Chair.

UTERINE SARCOMA.

The PRESIDENT showed a uterine sarcoma removed from a patient aged 51 years. There had never been any menstrual abnormality, and the menopause occurred between 45 and 46 years of age without incident. Five months before operation the patient developed uterine hæmorrhage, which came on irregularly and frequently, and for five weeks had been continuous; the only other symptoms were due to pressure of the tumour in the pelvis. On examination a symmetrical tumour was found reaching nearly to the umbilicus, and suggesting fibroid of the uterus. Total hysterectomy was done. On opening the uterus the cavity contained a pure white lobulated mass, brain-like in consistence, the centre of which contained blood-clot. Microscopically the tumour was a round-celled sarcoma.

The President referred to another case of fibro-sarcoma removed from a girl aged 27 years. Both tumours were cystic. It was not possible in either case to diagnose sarcoma as distinct from fibroid before removal, though at operation the probability was suggested by the softness of the tumour in the case shown and by the impossibility of enucleation in the other case.

Dr. ALFERD SMITH stated that his experience was that pain seldom occurred in the early stages of diffuse sarcoma, but it was an early manifestation in fibro-sarcoma. He recalled cases of polypi projecting through the os in which pressure of the examining finger burst a thin limiting membrane which formed the capsule of the polypus. The presence of this membrane he considered characteristic of sarcoma.

Dr. ROWLETTE considered that the tumour originated in the endometrium; this form was most frequent in his experience.

Dr. SOLOMONS said that although text-books referred to sarcoma as a disease of early life, the experience in this country was that it occurred most commonly about or after the menopause. He noted that the President performed total hysterectomy—not Wertheim's operation—in the present instance.

Sir A. HORNE also spoke.

EXHIBITS.

Sir A. HORNE showed (1) surgical needle removed from perineum; (2) fibroma with double pyosalpinx.

Dr. HASTINGS TWEEDY said that the point which interested him most in the specimen shown by Sir Andrew Horne was the very small size of the needle which had been employed to stitch the perineum. Its great delicacy proved the undoing of the doctor who used it. It was no surprise that it should have broken, but it is a surprise to find that there is at present an obstetrician who believes that any successful results can be achieved by superficial stitching with a diminutive needle.

Dr. ALFRED SMITH said that the case of double pyosalpinx raised the important point as to the period after infection it would be safe to operate. Sir A. Macan taught that the tube contents became sterile twelve months after infection. His (Dr. Smith's) rules for operation were as follows:—A period of at least three months must have elapsed from the date of infection; the temperature must be normal and the tubes mobile; there must be no rise of temperature following a bimanual examination.

The PRESIDENT said the specimen suggested that the disease was of very old standing, and this was borne out by the history of the case. It was possible that the tubal disease was the result of damage to the tubes produced by the subserous degenerating fibroid, and that the infection of the

tube was by extension from the intestines rather than an ascending infection.

Dr. SHIEL also spoke.

ABDOMINAL PREGNANCY.

Dr. BETHEL SOLOMONS read a paper on the above in which he concluded that the cause of the condition had not been established, that diagnosis was extremely difficult, and that the best treatment was to operate immediately the case was diagnosed. He described a successful case which had occurred in his practice, and exhibited the specimen.

Dr. ALFRED SMITH recalled that fifteen years ago Dr. Ryan, of Loughrea, sent him a patient ten months pregnant. In this case there was no difficulty in diagnosticating abdominal pregnancy. The child could be palpated distinctly: no fœtal heart was audible, and the uterus could be isolated bimanually. The child weighed 12 lbs.; it was free from any malformation; the liquor amnii was scanty; the placenta, which was attached to the broad ligament, was easily separated. There was no difficulty in controlling the hæmorrhage, as the vessels were thrombosed. In Dr. Solomons' case the condition was different, for there was an actively growing fœtus with its placenta broadly attached. The danger from hæmorrhage in separating the placenta was very great. He suggested the advisability of primary ligation of the corresponding internal iliac artery before proceeding with the separation of the placenta.

Dr. HASTINGS TWEEDY said that in view of the operation, described in his paper by Dr. Solomons, and a very similar specimen shown last year by the President, Dr. Gibbon Fitz-Gibbon, he thought the time had arrived to review our preconceived impression respecting the fear of operative procedure in abdominal pregnancy.

We have been too much under the influence of the teaching of the older school, and all the horrors of uncontrollable hæmorrhage have been derived from their writings. He thought with Dr. Solomons that the proper way was to tie off all vessels which fed the placenta, rather than endeavouring to ligate some large artery which might theoretically be supposed to feed all the placental branch vessels.

The PRESIDENT said the specimen was about twice the size of one he had shown, otherwise they were very similar. He fully agreed in the manner in which the case had been dealt with, and considered the only proper surgical treatment was to remove the entire mass. The bleeding was bound to be free, but could easily be controlled by tying off the definite spouting points, some of which would be very large vessels. Any oozing from raw surfaces could be controlled by gauze packing. He thought the placental site would generally be found largely formed of organising blood-clot which separated the placenta from the intestines and other viscera.

Sir A. HORNE also spoke.

Dr. SOLOMONS, in reply, said he did not think that Dr. Smith's proposition to ligate the internal iliac artery would be advisable or useful. He thought that the best plan was to separate the placenta and to tie off vessels as each appeared. The severity of the hæmorrhage in the case described in his paper was such as to cause marked constitutional symptoms. The amount of liquor amnii was small.

TWO CASES OF INTESTINAL HÆMORRHAGE IN THE NEW-BORN.

Dr. MABEL CRAWFORD described two cases of the above, both occurring in female infants, the hæmorrhage appearing 36 and 52 hours after birth respectively. In each case the labours were normal. The first case was treated with horse serum administered subcutaneously in three doses of 2 cc.

each and with small doses of adrenalin. The infant died on the fifth day. Post mortem, there was found a duodenal ulcer very near pylorus. The second case was treated with antidiphtheritic serum—two doses of 5 cc. each—and recovery was complete. Breast feeding was resumed on the fifth day without any further trouble. In both cases the only symptom was the passing of massive hæmorrhages per rectum; there was no vomiting.

Dr. CRAWFORD suggested that the ulceration might be due to a premature secretion of acid gastric juice, and in support of this theory pointed out that the ulceration in infants led, as a rule, to hæmorrhage—rarely to perforation—a fact suggesting that the ulcer forms on the posterior wall of the duodenum, which might be due—according to Payr, of Leipzig—to gravitation of the acid gastric secretion.

She regarded the immediate administration of a large dose of serum as the essential treatment.

Some notes were read of successful cases of melæna neonatorum treated by Dr. Boyd, of Lifford.

Dr. HASTINGS TWEEDY said that infantile hæmorrhages were almost always due to duodenal ulcer, and Dr. Crawford's suggestion as to the ætiology was of interest. Against her theory, however, it might be urged that digestive juices are not present in a newly-born infant's stomach, nor are they found there for many hours or days after birth. This argument could no doubt be countered by a suggestion of precocity in the formation of the gastric ferment The subject needs much further investigation, but the treatment of the condition by horse serum in large doses seems up to this to have yielded the most satisfactory results.

Dr. TREVOR SMITH said that he did not think the dose of adrenalin mentioned by Dr. Crawford sufficient. He wished to know if calcium chloride was given to either patient. He himself had a case of the kind a few years, and upon the administration of the latter drug the hæmorrhage ceased.

Dr. BETHEL SOLOMONS asked whether there had been difficulty in labour in either of the cases, as dystocia was a common cause of melæna. He considered that hæmorrhagic stools were caused often by other factors than duodenal ulcer, and that surgical interference in most cases would be futile. Cold applications to the abdomen and the injection of cold water per rectum had been successful in some instances.

Dr. ROWLETTE referred to intussusception as a cause of intestinal hæmorrhage in the new-born.

The PRESIDENT referred to a case of epistaxis in an infant three days old. The child died three hours after the first bleeding. It was pale and languid. Ecchymosis of the soft palate and fauces were noted, and although the evident loss of blood was very slight, the case suggested severe internal hæmorrhage. He thought these cases were not all due to one definite cause, such as duodenal ulcer, but that the bleeding might occur from any part of the alimentary mucous membrane.

Sir A. HORNE, Drs. ASHE and WEBB, also spoke.

Dr. CRAWFORD said, in reply, that as to the cause of the ulceration she regarded it as chemical rather than infective, because of the very early formation of the ulcer. The secretion of gastric juice before the third day would certainly be very abnormal, but this would account for the rarity of duodenal ulcer. As to treatment she could not approve of cold applications on account of the general condition of the infant. She had not given calcium chloride. She quoted two other cases which had recovered after treatment with serum.

President—Gibbon FitzGibbon, M.D., F.R.C.P.I.
Sectional Secretary—Bethel Solomons, M.D., F.R.C.P.I.
Meeting held Friday, March 24, 1916, the President in the Chair.

MYOMATA FROM A CASE OF CÆSAREAN MYOMECTOMY.

Dr. Gibson showed a specimen of above. The patient was first seen nearly four years ago, when she was thirty-two years of age, and had been married for nearly a year. She was in very good health, and was not in any way inconvenienced by the condition of her uterus. She menstruated regularly, and there was no discomfort or pain. She did not wish to undergo an operation if she could become pregnant without doing so. The largest tumour, which was then about the size of an apple, was situated apparently in the layers of the left broad ligament and attached to the supra-vaginal portion of the cervix. It was consequently pointed out to her that there might be trouble during labour if she did become pregnant, and removal of the tumours was recommended. The operation was declined when she understood that there was no reason to believe that she could not become pregnant. She returned within a year for her confinement. The fibroid in the pelvis did not then seem much larger, and it was distinctly softer. It was possible to push it well out of the way, and to feel the presenting part of the fœtus, which was the breach. She was anxious to avoid an operation, and the opinion was formed that the tumour would be pulled up during labour, and that it would be possible to deliver the child alive. All arrangements were made for a possible Cæsarean section, and the patient was allowed to go into labour. The labour progressed normally, and the tumour was pulled up satisfactorily. When the os was nearly fully dilated it was possible to feel the tumour above the brim, and the breach entering. The mother and child were then in good condition. About half an hour later the fœtal heart could not be heard, and examination showed that the cord had prolapsed past the tumour through a fully dilated cervix. The child was extracted at once; there was some difficulty with the fœtal head, but not a great deal. The child was dead. The patient promised to return for the removal of the tumours, but did not do so. She returned six weeks ago for her second confinement. The pelvic tumour was now the size of a small melon, and so much in the way that it was not possible to feel the presenting part, which was the head. A Cæsarean section was performed before labour started. The child was extracted alive, and the uterine incision closed. There was no difficulty in removing the tumours, two of which, including the largest, were subserous, the remainder being interstitial. There were five tumours in all. There was no more bleeding than if the uterus was not pregnant, and the extent to which the uterus could be drawn up outside the abdominal incision made the myomectomy easier than it generally is. The removal of the largest tumour exposed the endometrium, but did not open it. The cavities were closed with catgut. It was intended to allow the patient to deliver herself if she should become pregnant again, and it was submitted that Cæsarean myomectomy is the proper treatment for labour obstructed by fibroids when the uterine cavity is aseptic.

Sir William Smyly said that one of the most interesting questions connected with Cæsarean section was whether the uterine scar could be trusted in subsequent labours, and in that respect he considered that this case differed from the general rule, inasmuch as not only had the woman already borne a child per *via naurales*, but the cause of the previous obstruction having been entirely removed, no unusual strain upon the uterine wall was to be expected.

Dr. NEILL said that he remembered a patient in the Coombe Hospital who had a Cæsarean section performed for myoma obstructing labour, and who at a subsequent labour, about twelve months afterwards, was delivered by forceps without any difficulty.

Dr. BETHEL SOLOMONS considered that Dr. Gibson was very unlucky at the first confinement. If he had attempted to deliver the child when the os was dilated before the cord prolapsed all might have been well. He (Dr. Solomons) had reported to the Section a case of natural delivery after a former Cæsarean section. He had attended a case in two confinements where it had been necessary previously to remove about one-third of the uterus with myomata. With all these data, however, he thought it would be necessary to perform Cæsarean section in Dr. Gibson's case at subsequent confinements. The only other possible course to pursue would be to allow the patient to progress in labour on an operating table, and to have everything ready for an immediate Cæsarean section. He wished to know the suture material used in the case reported.

The PRESIDENT said he thought a myomectomy after Cæsarean section was better than the usual procedure of hysterectomy. He thought that the patient should be allowed to deliver herself in any consequent confinements. He held the view that when the cervix and vagina had already been dilated by the delivery of a child, and there was no obstruction, the scar in the uterus would hold, but where Cæsarean section was done on a *primipara* the risk of subsequent labours would be too great.

Dr. GIBSON, in reply, said he did not agree that Cæsarean section was necessary in case of myomata, except when they were causing obstruction. He reported a case in which the scar of Cæsarean section had given way in the eighth month of a succeeding pregnancy. The incision was closed with interrupted sutures of fine silk, and there was no sepsis. He concluded that the sutures were too close, and probably drawn too tightly in this case, as when this is done he had noticed how the incision became blanched during contractions. He now employed interrupted sutures of fine silk, placed about three-quarters of an inch apart, and then two continuous sutures of catgut, the first closing the muscle and the mucous membrane, the second closing the peritoneum and muscle. The silk sutures were then tied. Since then he had had no difficulty with patients who had become pregnant again, and he would allow labour to proceed in such a case when there was no longer obstruction.

SOME POINTS IN CONNECTION WITH PUERPERAL ECLAMPSIA.

Sir WILLIAM SMYLY read a paper on the above.

Dr. NEILL said that a patient of his who suffered from albuminuria with no convulsions had very severe post partum hæmorrhage. On the ninth day she had several severe fits, and was unconscious for four days. For eight days nothing was given but water and lemonade. Bicarbonate of soda solution, 1 dram to a pint of water, was injected under the breasts. She recovered.

Dr. SOLOMONS said that whilst the question of blood pressure was important, he had seen, during Dr. Tweedy's Mastership, thirty successive cases of eclampsia recover. In none of these was the blood pressure taken.

Dr. GIBSON said that Sir William Smyly had particularly raised the questions of high blood pressure and venesection. High blood pressure was valuable in that it helped to promote excretion of the poisons, but its evil effect was the strain it put on the poisoned heart. Its value, when taken in conjunction with other symptoms, lies in the fact that when a patient

with high blood pressure and treatment intended to eliminate the poisons, and prevent any additional poisoning, does not improve, she must be considered as drifting to coma and death, and should have her uterus emptied. He taught students that this matter could be settled within a few days during the so-called pre-eclamptic toxæmia when proper treatment was adopted and repeated examinations were made of the patient's general condition, blood pressure, pulse-rate, urine, eye symptoms, etc. He regretted that Sir William Smyly did not touch on the question of prevention. Patients should be made familiar with the early symptoms of the toxæmia of pregnancy. Many women became poisoned and suffered extensive injury without developing symptoms which would bring a doctor to their aid. Convulsions never appeared in some cases, and in others only when the toxæmia was profound. He had three cases of death without convulsions. The post mortem examination showed degeneration of the kidneys and liver of such extent that they could not have survived. On the other hand, patients frequently react to the poisoning by developing vomiting or convulsions, etc., at an early stage of the toxæmia, and with appropriate treatment they should recover. Unfortunately, however, the majority of hospital patients, not being warned, took no notice of the minor symptoms which would have indicated the danger. As regards venesection, he had found it of use in controlling the convulsions. Its good effect depended on its early use and the amount of blood removed. He consequently always bled his patients, from twenty to forty ounces, at once. It had stopped the convulsions in many of his cases, and with other treatment had helped towards their recovery. In some cases although the fits were controlled, he found there was no other improvement in the patient's condition. He believed that very many of the good results got by early operation were due to the bleeding induced.

Dr. ALFRED SMITH was interested in the suggestion that the various manifestations of puerperal toxæmia should be covered by one general term. In the premonitory symptoms of eclampsia great stress is now laid on increasing blood pressure. When the standard premonitory symptoms are present undoubtedly eliminating treatment should be tried. If this fails and eclamptic seizures supervene, immediate Cæsarean section gave best results. One large foreign clinic had over five hundred cases without a death. In Dr. Gibson's case, which he knew, the patient had been for some time on an eliminating water and milk dietary, yet convulsions occurred, and Cæsarean section was successfully carried out.

The PRESIDENT said he thought the present nomenclature satisfactory. All the conditions might be due to toxæmia, which might be the primary disease, while the hæmorrhage, vomiting and fits were only the individual exhibition of the disease. This individual exhibition was also seen in the varying intensity of eclampsia; some patients died profoundly poisoned with few fits, while others had numerous fits and evidently little poisoning. As to the treatment, he thought that bleeding when carried out as it was fifty or sixty years ago, gave good results, but he would follow that introduced by Dr Tweedy as probably the best at present. The value of blood pressure was greatly diminished by the want of reasonable limits in normal health amongst individuals.

In reply, Sir WILLIAM SMYLY said that the main point in his paper was to show that there was a definite disease, and that convulsions, coma, hæmorrhages, albuminuria and high blood pressure were only complications of that disease. It was desirable that they should be included under one name, and not treated as separate entities.

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